Indian and Northern Affairs Canada

CANADA'S NORTH

The Reference Manual

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Preface

Canada's North: The Reference Manual has been prepared by the Constitutional Development and Strategic Planning Branch of the Department of Indian Affairs and Northern Development (DIAND). It is published by the Canada Communication Group — Publishing of Supply and Services Canada (SSC).

This reference manual has been maintained as a topical, timely and accurate source of information on the North. Information and other data are considered accurate as of March 1990.

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TABLE OF CONTENTS

Preface

1.0 INTRODUCTION 1-1

General References 1-1

2.0 THE PHYSICAL ENVIRONMENT 2-1

2.1 Introduction 2-1

2.2 The Climate 2-1
2.2.1 General 2-1
2.2.2 Temperature 2-1
2.2.3 Precipitation 2-2
2.2.4 Climate and People 2-2

2.3 The Water 2-2
2.3.1 General 2-2
2.3.2 Sea Ice 2-2

2.4 The Land 2-3
2.4.1 Physiographic Regions 2-3
2.4.2 Hydrology 2-3
2.4.3 Glaciation 2-4
2.4.4 Permafrost 2-4
2.4.5 Vegetation 2-5

References 2-6

3.0 PEOPLE 3-1

3.1 Northern Settlements 3-1
3.1.1 Northwest Territories 3-1
3.1.2 Yukon 3-1

3.2 Population, Mortality and Mobidity Characteristics 3-2

3.3 Ethnicity 3-2
3.3.1 Aboriginal Peoples 3-2
3.3.2 Distribution 3-3

3.4 Languages 3-4

3.5 Economic Characteristics 3-4

3.6 The Arts 3-5

3.7 Social Change 3-6

References 3-7

4.0 HISTORY 4-1

4.1 Prehistory 4-1

4.2 Exploration 4-1

4.3 Development up to World War II 4-2
4.3.1 Yukon 4-2
4.3.2 N.W.T. 4-3

4.4 World War II and Subsequent Defence Activities 4-4

4.5 Development since World War II 4-4
4.5.1 Yukon 4-4
4.5.2 N.W.T. 4-5

References 4-5

5.0 NATIVE ORGANIZATIONS AND LAND CLAIMS NORTH OF 60° 5-1

5.1 The Recognition of Native Claims 5-1
5.1.1 Background 5-1
5.1.2 Native Claims Policy 5-2
5.1.3 The 1986 Comprehensive Land Claims Policy 5-2
5.1.3.1 Objectives 5-2
5.1.3.2 Scope of Negotiations 5-2
5.1.3.3 Self-Government 5-4
5.1.3.4 Involvement of Territorial Governments 5-4
5.1.3.5 Protection of Aboriginal and Non-Aboriginal Interests 5-4
5.1.3.6 Procedures 5-5

5.2 The Claims Settlement Process 5-5
5.2.1 Funding of Native Claimants 5-5

5.3 Comprehensive Land Claims in the North 5-6
5.3.1 Council for Yukon Indians (CYI) Claim 5-6
5.3.2 Dene/Metis Claims 5-6
5.3.3 The Inuvialuit (Western Arctic) Final Agreement 5-6
5.3.4 Tungavik Federation of Nunavut (TFN) Claim 5-7

5.4 Native Organizations North of 60° 5-7
5.4.1 Objectives 5-7
5.4.2 Inuit Circumpolar Conference (ICC) 5-8
5.4.3 Other Developments 5-8

References 5-8

Contacts 5-9

6.0 GOVERNMENT 6-1

6.1 Constitutional History and Evolution of Yukon and the N.W.T. 6-1
6.1.1 Recent Developments 6-1

6.2 Territorial System of Government 6-2
6.2.1 Territorial Revenue Structure 6-3
6.2.1.1 Federal Grants 6-3
6.2.1.2 Territorial Tax Base 6-3
6.2.2 Governmental Institutions of the Territories 6-3
6.2.2.1 The Commissioner — Yukon and the N.W.T. 6-3
6.2.2.2 Legislative Assembly — Yukon 6-3
6.2.2.3 Legislative Assembly — N.W.T. 6-4
6.2.2.4 Executive Council — Yukon 6-4
6.2.2.5 Executive Council — N.W.T. 6-4
6.2.2.6 The Judicial System in the N.W.T. and Yukon 6-4
6.2.3 Political Institutions 6-4
6.2.3.1 Party System 6-4
6.2.3.2 Interest Groups 6-5
6.2.3.3 Native Organizations — Yukon 6-5
6.2.3.4 Native Organizations — N.W.T. 6-6
6.2.4 Bureaucracy in the North 6-6

6.3 Government Services 6-6
6.3.1 Federal Government Services 6-6
6.3.1.1 Agriculture Canada 6-6
6.3.1.2 Employment and Immigration Canada 6-6
6.3.1.3 Canada Mortgage and Housing Corporation 6-7
6.3.1.4 Canada Post Corporation 6-7
6.3.1.5 Canadian Broadcasting Corporation 6-7
6.3.1.6 Canadian National Railways 6-7
6.3.1.7 Canada Oil and Gas Lands Administration 6-7
6.3.1.8 The National Transportation Agency of Canada 6-7
6.3.1.9 Communications Canada 6-7
6.3.1.10 Supply and Services Canada 6-7
6.3.1.11 Energy, Mines and Resources Canada 6-7

6.3.1.12	Environment Canada	6-8
6.3.1.13	External Affairs and International Trade Canada	6-8
6.3.1.14	Federal Environmental Assessment Review Office	6-8
6.3.1.15	Fisheries and Oceans Canada	6-8
6.3.1.16	Health and Welfare Canada	6-8
6.3.1.17	Indian and Northern Affairs Canada	6-9
6.3.1.18	Industry, Science and Technology Canada	6-9
6.3.1.19	Department of Justice	6-9
6.3.1.20	Labour Canada	6-9
6.3.1.21	National Defence	6-9
6.3.1.22	National Energy Board	6-10
6.3.1.23	National Film Board	6-10
6.3.1.24	National Museum of Natural Sciences and Canadian Museum of Civilization	6-10
6.3.1.25	National Research Council	6-10
6.3.1.26	Northern Pipeline Agency	6-10
6.3.1.27	Public Service Commission of Canada	6-10
6.3.1.28	Public Works Canada	6-10
6.3.1.29	Revenue Canada — Customs and Excise	6-10
6.3.1.30	Royal Canadian Mounted Police	6-11
6.3.1.31	Statistics Canada	6-11
6.3.1.32	Secretary of State	6-11
6.3.1.33	Transport Canada	6-11
6.3.1.34	Veterans Affairs Canada	6-11
6.3.2	Yukon	6-12
6.3.2.1	General	6-12
6.3.2.2	Public Service Commission	6-12
6.3.2.3	Education	6-12
6.3.2.4	Finance	6-12
6.3.2.5	Government Services	6-12
6.3.2.6	Health and Human Resources	6-12
6.3.2.7	Community and Transportation Services	6-12
6.3.2.8	Executive Council Office	6-12
6.3.2.9	Justice	6-12
6.3.2.10	Tourism	6-12
6.3.2.11	Renewable Resources	6-12
6.3.2.12	Economic Development: Mines and Small Business	6-12
6.3.2.13	Other Yukon Government Agencies	6-12
6.3.3	Northwest Territories	6-12
6.3.3.1	General	6-12
6.3.3.2	Culture and Communications	6-13
6.3.3.3	Economic Development and Tourism	6-13
6.3.3.4	Education	6-13
6.3.3.5	Energy, Mines and Petroleum Resources	6-13
6.3.3.6	Finance	6-13
6.3.3.7	Government Services	6-13
6.3.3.8	Health	6-13
6.3.3.9	Justice	6-13
6.3.3.10	Municipal and Comunity Affairs	6-13
6.3.3.11	Personnel	6-14
6.3.3.12	Public Works	6-14
6.3.3.13	Renewable Resources	6-14
6.3.3.14	Safety and Public Services	6-14
6.3.3.15	Social Services	6-14
6.3.3.16	Transportation	6-14
References		6-14
7.0	**RENEWABLE RESOURCES**	7-1
7.1	Water	7-1
7.1.1	General	7-1
7.1.1.1	Yukon River	7-1
7.1.1.2	Mackenzie River	7-1
7.1.2	Government Controls and Regulations	7-1
7.1.3	Hydroelectric Power Generation	7-2
7.2	Forestry	7-2
7.2.1	General	7-2
7.2.2	Administration	7-2
7.2.3	The Forests	7-3
7.2.4	Timber Harvesting and Regulation	7-3
7.2.5	Fire Protection	7-4
7.3	Wildlife	7-5
7.3.1	General Characteristics of the Northern Biological System	7-5
7.3.2	Important Northern Species	7-5
7.3.2.1	Terrestrial Mammals	7-5
7.3.2.2	Marine Mammals	7-6
7.3.2.3	Birds	7-7
7.3.2.4	Fish	7-7
7.3.2.5	Invertebrates	7-8
7.3.3	Importance of Wildlife	7-9
7.3.3.1	Economic Considerations	7-9
7.3.3.2	Scientific Considerations	7-10
7.3.3.3	Cultural Values	7-10
7.3.4	Threats to Wildlife	7-10
References		7-11
8.0	**NON-RENEWABLE RESOURCES**	8-1
8.1	Mines and Minerals	8-1
8.1.1	General	8-1
8.1.2	Government Regulations, Assistance and Service	8-2
8.1.3	Mineral Exploration and Production — Yukon	8-2
8.1.4	Mineral Exploration and Production — N.W.T.	8-2
8.2	Oil and Gas	8-3
8.2.1	Introduction	8-3
8.2.1.1	Current Production, Processing and Refining	8-3
8.2.1.2	Acts and Regulations	8-4
8.2.2	Oil and Gas Discoveries and Reserves	8-5
8.2.3	Recent Activities	8-5
8.2.3.1	Mainland Territories	8-5
8.2.3.2	Mackenzie Delta-Beaufort Sea	8-5
8.2.3.3	High Arctic	8-6
8.2.3.4	Eastern Arctic	8-6
8.3	Land Use and Environmental Concerns	8-7
8.3.1	Mines and Minerals	8-7
8.3.1.1	Granular Resources	8-7
8.3.2	Oil and Gas	8-8
8.3.3	Land-Use Planning	8-8
8.3.4	General Information on Environmental Studies Research Fund	8-8
References		8-9
9.0	**NORTHERN HYDROCARBON TRANSPORTATION**	9-1
9.1	General	9-1
9.2	Curent Pipelines	9-1
9.2.1	Norman Wells Oilfield Expansion and Pipeline	9-1
9.2.2	Yukon Pipeline	9-1
9.2.3	Pointed Mountain	9-2
9.3	Proposed Pipelines	9-2
9.3.1	Alaska Natural Gas Transmission System	9-2
9.3.1.1	Yukon Segment	9-3
9.3.2	Dempster Lateral	9-4
9.3.3	Polar Gas Pipeline	9-5
9.3.4	Mackenzie Valley Pipeline Project	9-5

References 9-6

10.0 TRANSPORTATION 10-1

10.1 General 10-1

10.2 Air Transportation 10-1
10.2.1 General 10-1
10.2.2 Equipment 10-1
10.2.3 Fares and Charter Rates 10-1

10.3 Roads and Road Transportation 10-2
10.3.1 General 10-2
10.3.2 Highways in Yukon 10-2
10.3.3 Highways in the N.W.T. 10-2
10.3.4 Highway Freight Carriers 10-2
10.3.5 Buses 10-3

10.4 Water Transportation 10-3
10.4.1 General 10-3
10.4.2 The Mackenzie Watershed Routes 10-3
10.4.3 Central, Eastern and High Arctic Shipping 10-4

10.5 Rail Transportation 10-4
10.5.1 General 10-4
10.5.2 The White Pass and Yukon Railway 10-4
10.5.3 The Great Slave Lake Railway 10-4

10.6 Courier Services 10-4

References 10-4

11.0 COMMUNICATIONS 11-1

11.1 Telephone Service 11-1
11.1.1 Bell Canada 11-1
11.1.2 NorthwesTel 11-1

11.2 Radio 11-1
11.2.1 Radio-Telephone 11-1
11.2.2 Radio and Television Broadcast Facilities 11-1

11.3 Radio and Television Programming 11-2
11.3.1 Radio Programming 11-2
11.3.1.1 CBC Northern Service 11-2
11.3.1.2 Northern Native Broadcasting, Yukon 11-3
11.3.1.3 Native Communications Society of the Western Northwest Territories 11-3
11.3.2 Television Programming 11-3
11.3.2.1 CBC Northern Service 11-3
11.3.2.2 Inuit Broadcasting Corporation 11-3
11.3.2.3 Inuvialuit Communications Society 11-4
11.3.2.4 Northern Native Broadcasting, Yukon 11-4

11.4 Print Media 11-4
11.4.1 Northwest Territories 11-4
11.4.2 Yukon 11-5

11.5 Communications Organizations and Societies — Contacts 11-5

References 11-6

12.0 SOCIO-ECONOMIC INFRASTRUCTURE 12-1

12.1 General 12-1
12.1.1 Economic Development Agreements 12-1
12.1.1.1 Canada/Yukon Economic Development Agreement 12-1
12.1.1.2 Canada/N.W.T. Economic Development Agreement 12-1

12.2 Associations and Organizations 12-2
12.2.1 General 12-2
12.2.2 Hunters' and Trappers' Associations 12-2
12.2.3 Other Local Councils and Committees 12-2
12.2.4 Regional Groupings 12-3
12.2.5 Other Organizations 12-3

12.3 Business Organizations 12-3
12.3.1 Yukon Businesses 12-3
12.3.2 N.W.T. Businesses 12-4

12.4 Business Regulation and Taxes 12-5
12.4.1 Licences and Regulations 12-5
12.4.2 Taxes — Personal, Land, Business 12-5

12.5 Health Facilities 12-5
12.5.1 Institutions, Location, Size, Services 12-6
12.5.2 Health Programs, Insurance, Scope, Impact 12-6

12.6 Social Services 12-7
12.6.1 Responsibilities 12-7
12.6.2 Social Service Facilities 12-8
12.6.3 Problems and New Approaches 12-8

12.7 Educational Facilities 12-9
12.7.1 Schools — Location, Grades, Enrolment 12-9
12.7.2 Programs 12-9
12.7.3 Vocational Training 12-10

12.8 Employment and Working Conditions 12-10
12.8.1 General 12-10
12.8.2 Current Employment and Prospects 12-10
12.8.3 Wages, Salaries and Allowances 12-11
12.8.4 Labour Legislation 12-11
12.8.4.1 Yukon 12-11
12.8.4.2 Northwest Territories 12-12

12.9 Consumer Goods and Services 12-12
12.9.1 Food 12-12
12.9.2 Clothing, Furniture — Household Goods and Services 12-12
12.9.3 Petroleum Products 12-12
12.9.3.1 Hot Water and Steam 12-13

12.10 Utilities 12-13
12.10.1 General 12-13
12.10.2 Electricity 12-13
12.10.3 Other Utilities 12-13
12.10.4 Fuel Supplies 12-14
12.10.5 Subsidies 12-14

References 12-14

13.0 TOURISM AND RECREATION 13-1

13.1 General 13-1
13.1.1 Yukon 13-1
13.1.1.1 Arts and Crafts 13-1
13.1.2 N.W.T. 13-1
13.1.2.1 Arts and Crafts 13-1

13.2 Parks 13-2
13.2.1 General 13-2
13.2.2 Kluane National Park Reserve 13-2
13.2.3 Northern Yukon National Park 13-2
13.2.4 Nahanni National Park Reserve 13-3
13.2.5 Wood Buffalo National Park 13-3
13.2.6 Auyuittuq National Park Reserve 13-3
13.2.7 Ellesmere Island National Park Reserve 13-3
13.2.8 Klondike National Historic Sites 13-4
13.2.9 S.S. Klondike National Historic Site 13-4
13.2.10 Chilkoot Trail Proposed National Historic Park 13-4
13.2.11 Territorial Parks — N.W.T. 13-4
13.2.12 Territorial Parks — Yukon 13-4

13.3 Commercial Facilities 13-4
13.3.1 Locations, Accommodation, Rates 13-4
13.3.2 Activities — Fly-In Fishing, Hunting, Touring — Accommodation, Facilities, Cost 13-5
13.4 Sports 13-6
13.4.1 Local Events — Participation 13-6
References 13-7

14.0 LOCATIONS OF GOVERNMENT OFFICES IN THE NORTH 14-1
14.1 Federal Government Departments and Agencies 14-1
14.1.1 Ministers of the Crown 14-4
14.1.2 Members of Parliament 14-4
14.2 Government of Yukon 14-4
14.3 Government of the Northwest Territories 14-6

LIST OF TABLES

2.0 THE PHYSICAL ENVIRONMENT
2-1A Mean monthly and annual temperatures (°C) at selected weather stations, 1951-1981 2-8
2-1B Mean monthly and annual precipitation (mm) at selected weather stations, 1951-1981 2-9
2-2 Mean break-up and freeze-up dates in Yukon and N.W.T. locations 2-10
2-3 Representative permafrost thicknesses and temperatures in various Yukon and N.W.T. locations 2-10

3.0 PEOPLE
3-1 Population — N.W.T. Communities 3-9
3-2 Population — Yukon Communities 3-10
3-3 Deaths from All Forms of Tuberculosis 3-11
3-4 New Active and Reactivated Cases of Tuberculosis 3-11
3-5 Sexually Transmitted Diseases, Gonorrhea and Syphilis 3-12
3-6 Native and Non-Native Population — N.W.T. 3-12
3-7 Native and Non-Native Population — Yukon 3-13

7.0 RENEWABLE RESOURCES
7-1 Location, operator and installed megawatt capacity of existing hydroelectric installations 7-12
7-2 Primary Forest Production in the N.W.T. and Yukon 7-12
7-3 Fur Production in the N.W.T. 7-13
7-4 Fur Production in Yukon 7-14

8.0 NON-RENEWABLE RESOURCES
8-1 Lands Staked for Mining Purposes, Yukon and the N.W.T. 8-10
8-2 Mineral Production — 1979-1989, Yukon 8-11
8-3 Mineral Production of Operating Mines in the Yukon, 1986, 1987, 1988 and 1989 and Employment, 1989 8-12
8-4 Mineral Production of Operating Mines in the Northwest Territories, 1986, 1987, 1988 and 1989 and Employment, 1989 8-13
8-5 Mineral Production — 1979-1989, Northwest Territories 8-14
8-6 Total area and volume of sedimentary rocks in Yukon, N.W.T. and the western provinces of Canada 8-15
8-7 Northern Canada's Petroleum Resource Endowment 8-15

10.0 TRANSPORTATION
10-1 Aircraft types used in scheduled service to various northern points 10-5
10-2 Typical one-way air fares, regular economy class, November 1988 10-5
10-3 Typical general air cargo rates, November 1988 10-5
10-4 Typical charter rates for aircraft in the N.W.T., November 1988 10-5
10-5 Typical rates for general cargo by highway transport, January 1989 10-6
10-6 Typical one-way bus fares, February 1989 10-6
10-7 Average break-up and freeze-up dates, Great Slave Lake and Mackenzie River 10-6
10-8 Tonnage carried by Northern Transportation Company Ltd., 1979-1988 10-7
10-9 Tonnage carried by Eastern Arctic Sealift, 1979-1988 10-7

11.0 COMMUNICATIONS
1-1 Telephone service in the N.W.T. and Yukon, February 1989 11-7
11-2 Radio Broadcast and Cable Services, N.W.T. and Yukon, August 1989 11-9
11-3 Rebroadcast/Repeater Services, N.W.T. and Yukon, August 1989 11-10

12.0 SOCIO-ECONOMIC INFRASTRUCTURE
12-1 Number of Establishments by Major Industry Group, December 1988 12-16
12-2 Distribution of number of establishments by number of employees, December 1988 12-16
12-3 Population and Labour Force, 1986-1988 12-16
12-4 Annual Averages of Employees by Industry Group 12-17
12-5 Average Weekly Earnings by Industry Group 12-17
12-6 Spatial Price Indices — Yellowknife and Whitehorse 12-18
12-7 Food Price Indices, Selected Communities 12-19
12-8 Average Gasoline and Fuel Oil Prices, 1989 12-19
12-9 Current Electrical Rates, August 1989, Yukon 12-20
12-10 Electrical Rates, February 1, 1990, N.W.T. 12-21

13.0 TOURISM AND RECREATION
13-1 Tourists and Their Expenditures in the N.W.T. and Yukon 13-8
13-2 Typical Special Events Calendar — Yukon 13-9
13-3 Typical Special Events Calendar — N.W.T. 13-10

LIST OF FIGURES

2.0 THE PHYSICAL ENVIRONMENT
2-1 Duration of Daylight Through Year as a Function of Latitude 2-11
2-2A Mean Daily Temperatures in Northern Canada, January 2-12
2-2B Mean Daily Temperatures in Northern Canada, July 2-13
2-3 Temperature/Wind Chill Index 2-14
2-4 Permafrost Distribution and Sea Ice Cover in Northern Canada 2-15
2-5 Physiographic Regions of Northern Canada 2-16
2-6A Northern Canada after Glaciation 2-17
2-6B Stages in the Last Deglaciation of Northern Canada 2-18
2-7 Major Vegetation Zones in Northern Canada 2-19

3.0 PEOPLE
3-1 Northern Communities 3-14
3-2 Northern Aboriginal People — 1989 3-15

4.0	HISTORY	
4-1	Route of the S.S. Manhattan through the Northwest Passage — 1969	4-7
7.0	RENEWABLE RESOURCES	
7-1	Forest Regions	7-15
8.0	NON-RENEWABLE RESOURCES	
8-1	Mineral Exploration and Mining in Yukon	8-16
8-2	Mineral Exploration and Mining in the Northwest Territories	8-17
8-3	Location of Hydrocarbon Potential-Geological Provinces	8-18
8-4	Current Exploration in the Mackenzie-Beaufort Sea	8-19
8-5	Current Exploration in the Arctic Islands	8-20
9.0	NORTHERN HYDROCARBON TRANSPORTATION	
9-1	Oil and Gas Transportation	9-7
10.0	TRANSPORTATION	
10-1	Airports — Level of Service	10-8
10-2	Road Network: Yukon and Northwest Territories	10-9
10-3	Arctic Marine Transportation	10-10
11.0	COMMUNICATIONS	
11-1	Native Communications Societies and Television Reception	11-17
13.0	TOURISM AND RECREATION	
13-1	National Parks, National Park Reserves, Heritage Rivers, Historic Sites, and Territorial Parks	13-11

1.0 Introduction

Canada's North: The Reference Manual provides basic information about Yukon and the Northwest Territories. This region covers almost 40 per cent of the total area of Canada.

As economic development and political events focus on the North, there has been an increasing demand for information about this region.

Information in the Reference Manual is organized under 13 topics. It represents the most recent and available collection of knowledge on these subjects. Many people, not only in the federal government, but also in the territorial governments and non-government organizations, contributed to the Manual. Some of the topics covered are more complicated than others and therefore required more space. Nevertheless, a guiding theme throughout the Manual's preparation was to confine the coverage to the current situation. In some cases more background material would have been useful to appreciate the present-day North. Limitations of space prevented such detailed and extensive treatments.

Indian and Northern Affairs Canada (INAC) expects that this Manual will be of use to those who wish to understand more about the North in all of its many facets. At the end of each section, some basic and recent references are included for those who wish to pursue various other aspects of the information contained in that section.

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2.0 The Physical Environment

2.1 Introduction

Yukon and the Northwest Territories make up almost 40 per cent of the total area of Canada. The Yukon contains 478,970 km² of land and 4,480 km² of freshwater. The N.W.T. contains 3,293,020 km² of land and 133,300 km² of freshwater. The territories lie north of 60° latitude, and therefore receive much less direct sunlight and warmth than any other region in Canada. They experience intense cold, long periods of darkness and less precipitation than most deserts. Much of the ground is frozen year-round, often to great depths in the far north.

Northern regions are commonly classified as either *arctic* or *subarctic*. The tree line forms the boundary between the two. In Canada, the tree line begins in the northern Yukon, goes southeast to Churchill, Manitoba, then follows the southern coast of Hudson Bay to Great Whale River, Quebec; from there it runs east to Ungava Bay and the Labrador Coast.

Mainly low-growing shrubs and tundra species grow north of the tree line. The scenery varies from undulating lowlands in central Keewatin to spectacular, ice-covered mountains with deep fiords on the Baffin Island coast. Arid, desert-like landscapes typify the far northern islands, such as Ellef Ringnes and Amund Ringnes. South of the tree line, the northern forest extends throughout the lowlands of the Mackenzie Valley. It merges with open woodland and forest tundra in the higher elevations of the Yukon and the Mackenzie Mountains. Some of the highest elevations are alpine tundra.

The Arctic Islands are worthy of special recognition since other northern polar countries do not possess such extensive ice-free areas extending so far north. The Arctic Islands constitute a northern archipelago which reaches to latitude 83°N. Some of the islands are large (e.g., Baffin, Victoria, Banks and Ellesmere islands). The Arctic Islands experience some of the harshest climatic conditions in Canada. The High Arctic is an integral part of northern Canada, even though it is remote and sparsely populated.

2.2 The Climate

2.2.1 General

Arctic, boreal and montane climates characterize the N.W.T. and Yukon. It can be extremely cold in Canada's northern territories where mean annual temperatures are usually near or below freezing and winter temperatures are frequently below -30°C. The *arctic climatic zone* refers to all areas north of the tree line, while the *boreal climatic zone* refers to those areas south of the tree line. Basic climatological data for a number of localities are given in Tables 2-1A and 2-1B.

The northerly latitudes mean there is less sunlight during fall and winter than in southern Canada and sometimes in the winter north of the Arctic Circle, there is no daylight (Figure 2-1). Lowest temperatures occur in February and March in the far north, and in January farther south. The snow cover impedes the rise in temperature in the spring by reflecting sunlight and absorbing latent heat while it melts.

The climate in Canada's north is influenced by year-round ice in Greenland and the Arctic Ocean. The Arctic Ocean particularly is a source for arctic air masses. The arctic regions usually experience these air masses year-round while the sub-arctic regions tend to experience them only in the winter and spring. In summer and fall, mainland areas get more westerly, relatively warm air currents from the Pacific Ocean than cold arctic air masses. Warm westerly winds speed up the thaw period in the Yukon interior and the Mackenzie Valley, where summer temperatures often exceed 25°C.

2.2.2 Temperature

Mean daily temperatures for January and July (Figure 2-2A and Figure 2-2B) illustrate the variability of temperatures in northern Canada.

In the N.W.T., winters are long and cold, with temperatures in February averaging between -15°C and -30°C. For the warmest summer months, mean temperatures average 12.5°C in the northern boreal forest, 8 to 12°C north of the tree line, and 3 to 8°C in the Arctic Islands. Topographic effects (which are factors throughout the year) are most significant in the eastern and western regions. The growing season for native vegetation (but not crops) may be as much as four to five months in the boreal forest, three to four months north of the tree line and less than two months in the Arctic Islands. The frost-free period in the Mackenzie Valley varies from 50 to 115 days. In the eastern and northern Arctic, it varies from nearly 60 days at Iqaluit to less than 15 days at most locations north of the Parry Channel, with the exception of certain sheltered areas such as Eureka (36 days).

In Yukon, the frost-free period varies from about 16 to 93 days, depending largely on altitude and other local site conditions. The longest frost-free periods recorded are at Watson Lake (93 days), Dawson (91 days), Faro (90 days) and Whitehorse (82 days). Frost-free periods are shorter north of Dawson and for areas at elevations higher than 650 m above sea level. For example, Teslin at an elevation of 705 m has a frost-free period of 60 days, and Inuvik, N.W.T., is frost-free for only 51 days.

The mountainous terrain of Yukon and its relative proximity to the warm Pacific air masses result in marked variations in weather patterns. In summer, sheltered valleys heat up. The highest temperature on record is 36.1°C, at Mayo. In winter, arctic air masses often remain stationary over the interior of Yukon; temperature inversions can develop in the valleys and extremely low temperatures result. The settlement of Snag holds the record minimum temperature (-62.8°C) for Canada. These inversions may exist for several weeks, only to be followed quickly by relatively warm temperatures as the air masses change.

By contrast with Yukon, extreme maxima in the N.W.T. range from 36.1°C at several locations in the

Mackenzie Valley to the 20 to 25°C range north and east of the mainland. Extreme minima recorded are -57.8°C on the mainland (at Shepherd Bay) and -55.3°C on the Islands (at Eureka).

2.2.3 Precipitation

Total annual precipitation, including snowfall equivalent, averages only 100 to 150 mm in the northwestern and central Arctic Islands, but increases to 250 to 300 mm in the eastern Arctic and at the tree line. At higher elevations both in the southeastern area of Baffin Island and in the Yukon, precipitation can exceed 500 mm. Topography and seasonal prevailing winds influence the amount of precipitation, as do low pressure storm centres, though the North experiences fewer low pressure storm centres than more temperate regions. Between 50 per cent and 90 per cent of the precipitation falls as snow.

Winds sweep much of the upland polar desert bare of snow, while snow accumulates in gullies and on lee slopes. Snowmelt and peak runoff occur earlier on south-facing slopes than on north-facing slopes. Much more snow falls south of the tree line, where trees and shrubs trap the snow and allow it to melt more evenly.

Most precipitation occurs either in the autumn or early spring. Average snow depths of 50 cm or more are common in the southern Mackenzie Valley, Yukon, and along eastern Arctic Island coasts.

2.2.4 Climate and People

Nowhere in Canada are people more conscious of the climate than in the North. Building construction, work schedules, leisure activities and transportation patterns are determined largely by climatic conditions. Strong winds and low temperatures, especially on treeless tundra, can produce severe and sometimes dangerous winter conditions for man.

Temperatures below -35°C and winds greater than 30 km/hr are common in parts of Keewatin and the Arctic Islands. In January 1971, Isachsen recorded a temperature of -37°C and a wind speed of 80km/h. This corresponded to a wind-chill cooling rate from 2,700 watts/m^2 to 3,000 watts/m^2. For the average person, exposed flesh freezes in less than one minute when the wind chill is 2,300 watts/m^2 (Figure 2-3).

Blizzard conditions are another climatic hazard. These exist when there is snow or blowing snow, winds greater than 40 km/h, visibility less than 0.8 km and temperatures below -12°C. On such occasions, most outdoor activities are severely curtailed. Even by itself, blowing snow is a major problem, occurring, for example, as much as a quarter of the time in mid-winter at some of the high arctic locations and even more frequently in Keewatin.

Fog is another transportation hazard, especially in late summer in the Arctic Islands where there is an abundance of water vapour at very low elevation. Aircraft movements are often hampered by such conditions. In mid-winter, in some of the larger settlements such as Inuvik, ice fog is a common characteristic brought about by the freezing of warm, moist air from buildings and vehicle exhaust fumes.

2.3 The Water

2.3.1 General

The Arctic Ocean, Hudson Bay, Foxe Basin, Baffin Bay and the various straits and channels between the Arctic Islands constitute large, often deep, water bodies. These are frozen for much of and sometimes all the year and form pack ice up to several metres thick.

The Arctic Ocean is the largest water body in the north. Most of its surface area is permanently covered by pack ice which rotates slowly in a clockwise direction. In this area open water develops only in late summer off the west coast of Banks Island and in the Beaufort Sea. M'Clure Strait, the western end of the North-West Passage, and the channels separating the more northerly of the Arctic Islands remain clogged with large semi-permanent ice floes.

In the absence of icebreaking vessels, marine navigation in the Arctic Islands is largely confined to waters south and east of Barrow Strait during August and September. Although there is a slightly longer shipping season in the Beaufort Sea and Amundsen Gulf areas of the western Arctic, access to these areas from southern ports is considerably more difficult than is access to Lancaster Sound. Further south, Hudson Bay does not freeze completely until the end of December and begins to clear in June.

The marine areas of northern Canada possess a totally arctic climate. The summers are cool, with July temperatures usually less than 6°C. Fog, mist and clouds are common. Water temperatures are always near or just above freezing. They have a pronounced influence upon the climate of the adjacent land by cooling temperatures and spreading extensive cloud in summer. In winter, the frozen waters, especially the Arctic Ocean, serve as uniform *source areas* for exceptionally cold arctic air masses.

2.3.2 Sea Ice

The ice found in the arctic waters of northern Canada can be classified into two categories: ice of land origin and sea ice.

Ice of land origin is glacial ice that forms on land or as an ice shelf and reaches the sea. This includes ice islands, icebergs (broken glacial ice floating in the sea) and their derivatives. When glaciers break up into icebergs, this process is called "calving". Icebergs are common in Baffin Bay. Most (90 per cent) originate from the glaciers along the west coast of Greenland; a small percentage come from the Canadian Arctic Archipelago. These icebergs threaten shipping and offshore exploration as they drift south into the Atlantic Ocean. It takes two to three years for an iceberg calved on the west coast of Greenland to drift to the Grand Banks of Newfoundland, where it melts.

Ice islands are large, tabular-shaped pieces of ice, up to 60 m thick. They originate from ice shelves, such

as those along the northern coast of Ellesmere Island. Between August 1961 and April 1962, some 596 km² of ice at the Ward Hunt Ice Shelf on Ellesmere Island broke off and formed 19 ice islands. Five were between 70 km² and 140 km². In the 1980s, several islands from the same source have drifted southwest close to the outer coast of the Arctic Archipelago and are now situated close to the northern tip of Ellef Ringnes Island. One has been occupied by a Canadian research station.

Sea ice is any form of ice found at sea that forms when sea water freezes. This ice is classified according to age and thickness. It progresses from new ice (up to 10 cm thick) through young ice (between 10 cm and 30 cm thick) to first-year ice (greater than 30 centimetres thick). First-year ice which is smooth and level, is typically up to 250 cm thick but may become much thicker when rafted or compressed into ice ridges. When sea ice survives at least one summer's melt, it is called old ice, which can be sub-divided into second-year ice or multi-year ice. Undeformed old ice floes are typically up to 450 cm thick.

Sea ice moves with water currents, tides and winds. Resultant forces and motions create tension and compression within the ice. Pressure ridges, consisting of broken ice several metres high, may form when large ice masses converge. Pressure ridges have deep keels of broken ice extending tens of metres below sea level. Hummocked and rafted ice can also develop when ice floes are forced together. When ice floes drift apart, areas of open water and channels (sometimes called leads) normally develop. The narrow waterways and numerous islands in the Canadian Archipelago restrict the movement of ice and affect its distribution and variability. Figure 2.4 shows the yearly minimum, median and maximum limits of sea ice.

Polynyas are areas of open water enclosed in ice and are the result of a number of factors occurring within the same geographical location. One of the largest and best known is the "North Water" and is actually a case of a recurring polynya. It occupies an area of several thousand square kilometres each winter in Smith Sound, at the northern end of Baffin Bay. Such areas of open water dictated prehistoric settlement patterns and, more recently, whale hunting grounds.

2.4 The Land

2.4.1 Physiographic regions

Northern Canada may be divided into five major geologically determined physiographic regions (Figure 2-5). The most extensive is the Canadian Shield, which comprises much of the N.W.T. mainland, and the southeastern Arctic Islands. The terrain is rocky and hilly, with numerous lakes. Structurally, the Shield consists of a series of broad arches and basins, which once formed more dramatic relief but are now eroded to a nearly level surface. Ancient igneous and metamorphic rocks predominate throughout the Canadian Shield, although sandstone plains occur in Central Keewatin. Younger, sedimentary rocks are preserved within broad shallow basins, such as Hudson Bay and Foxe Basin.

The Inuitian Region includes most of the Queen Elizabeth Islands. Here, the sedimentary rocks are gently to steeply folded. Faulting and erosion have separated the islands into a number of groups. The broad channel forming the North-West Passage, known in its various parts as M'Clure Strait, Viscount Melville Sound, Barrow Strait and Lancaster Sound, lies along a such a major structural line.

The islands of the Sverdrup Basin are underlain by thousands of metres of sedimentary rock younger than those of the Canadian Shield. These layers give rise to low-lying terrain, usually less than 600 m in elevation, but rising to over 750 m on western Melville Island. The northern part of the Inuitian Region is mountainous, rising to over 2000 m on Axel Heiberg and Ellesmere islands.

Flanking the Canadian Shield to the north and west are extensive areas of near-horizontal sedimentary rocks, mostly carbonates, which form the Interior Plains and Arctic Lowlands. These underlie undulating lowland plateaus areas which comprise much of Victoria and Prince of Wales islands and extending southward to form the Mackenzie Lowlands to the west of Great Slave and Great Bear Lakes.

The Arctic Coastal Plain is a low-lying zone adjacent to the Arctic Ocean and extends southward from Meighen Island through Prince Patrick and Banks islands to the Mackenzie Delta and the northern Yukon coast. It is made of unconsolidated Tertiary and Quaternary sand, gravel and silt.* Quaternary sediments in this region often have high ice content, particularly in the Mackenzie Delta and the Yukon Coastal Plain.

The Northwestern Cordillera includes all of the Yukon (except the coastal plain) and the Mackenzie Mountains of N.W.T.. This region of mountains and intermontane plateaus is developed on complex geological structures.

In northern Yukon, the British Mountains rise to over 1500 m. They join the northern tip of the north-south trending Richardson Mountains which extend southward to link with the ranges of the Mackenzie Mountains. Much of northern and central Yukon consists of a series of intermontane plateaus. Elevations in the Yukon and Porcupine plateaus rise to 1800 m, and peaks in the Ogilvie and Wernecke mountains exceed 2200 m. In the extreme southwest Yukon, coastal mountain ranges of the ice-capped St. Elias Mountains culminate in Mount Logan (6050 m), the highest point in Canada.

2.4.2 Hydrology

Numerous lakes and an intricate network of surface drainage characterize northern Canada. The Mackenzie River, the longest in Canada, drains northwestward from Great Slave Lake and flows toward

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* *In the geologic time scale the Tertiary period began about 65 million years ago and ended between 1.5 and 2 million years before the present. The Quaternary period followed the Tertiary period and includes the present.*

the Arctic Ocean where the Mackenzie Delta constitutes a unique region of numerous channels and lakes both north and south of the tree line. Several large tributaries, such as the Liard, Keele, Arctic Red and Peel rivers drain the eastern flanks of the Mackenzie Mountains and interior Yukon. Much of Yukon is drained by the headwaters of the Yukon River. Its larger tributaries draining the interior intermontane areas of Yukon are the Pelly and Stewart rivers. The Yukon River ultimately passes into Alaska, where it is joined by the Porcupine River, which drains the northern part of the interior of Yukon. To the east, the Coppermine and Back Rivers drain north and the Thelon River drains east into Hudson Bay.

Generally, the runoff of the rivers and streams in northern Canada is controlled by snowmelt and summer rains. Other influences include ice cover breakup and ice jams. Phenomena such as break-up and freeze-up vary significantly according to various factors including latitude. Table 2-2 shows mean break-up and freeze-up dates for different locations and major basins in the North. In the smaller streams between 25 and 75 per cent of total runoff may take place within a two-week period. The annual highest peak flows are usually associated with the spring *freshet* (snowmelt). In glacial-fed streams peak flows result from a combination of glacial melt and rains. The prediction of the time of break-up and the magnitude of the annual flood is an important concern to settlements located along the major rivers in northern Canada. Rivers and lakes in the eastern part of the north tend to have later break-up dates, as can be seen in Table 2-2.

Since the Mackenzie Delta is in a zone where the ground is frozen year-round, it is highly prone to flooding when downstream and overland runoff is high. The river is a useful summer transportation route when flooding makes land transportation difficult. However, the flooding season is relatively short since break-up starts in May just north of the Liard River junction and freeze-up starts in early October in the Mackenzie Delta (Table 10-7).

2.4.3 Glaciation

Nearly all of northern Canada has been glaciated at some time during the last two million years. Today, however, only five per cent of the Canadian North is covered by glaciers. With a few exceptions, these areas are located in either the highland northeastern rim of the Canadian Shield, on eastern Baffin and Ellesmere islands, or in the St. Elias Mountains of southwestern Yukon. There are two ice caps, the Barnes and Penny, on Baffin Island, and numerous glaciers extend to the sea, especially on Ellesmere Island. The Icefield Ranges of the St. Elias Mountains in Yukon are especially impressive.

There is widespread evidence of the existence of more extensive glaciation in the past. The deeply eroded valleys and fiords of Baffin Island provide striking examples of previously glaciated mountain terrain. By contrast, but equally revealing, much of the Canadian Shield and interior lowlands is covered with a veneer of glacial till and coarse outwash or ice-contact deposits left by the retreating ice sheets. Inland seas and glacial lakes covered many areas during and after deglaciation (Figure 2-6A). Most areas of the N.W.T. are now experiencing isostatic rebound (i.e., bouncing back) after earlier depression of the earth's crust by the tremendous weight of these ice sheets. Raised beaches and marine sediments are widespread throughout parts of Keewatin and many of the central Arctic Islands. They are often found at some distance from the coast. Only parts of the northern and western Arctic Islands, together with parts of the Mackenzie Delta and interior northern Yukon, escaped glaciation during the last ice advance which culminated approximately 18,000 to 25,000 years ago (Figure 2-6B).

2.4.4 Permafrost

One consequence of the extended period of winter cold and the relatively short period of summer thaw is the formation of perennially frozen ground. The term *permafrost* describes the thermal condition of earth materials when their temperature remains below 0°C for a number of years. Above the permafrost is a surface layer of soil or rock called the active layer, which thaws in summer and freezes in winter. Ground ice is an important part of permafrost in areas, such as the Mackenzie Delta, where fine-grained soils occur extensively. The heaving of the ground or the melting of ice-rich permafrost are the most important geotechnical considerations in engineering projects.

One-half of Canada's land surface, including most of Yukon and the N.W.T., is underlain by permafrost (Figure 2-4). Permafrost is divided into two zones: continuous and discontinuous. The continuous permafrost zone includes most areas north of the tree line plus extensive areas at higher elevations within the Cordillera in the Yukon. In this zone, permafrost exists everywhere beneath the surface and varies in thickness from approximately 100 m at the southern limit to more than 750 m in the extreme north. In the discontinuous permafrost zone, areas free of permafrost become more and more extensive toward the south. Table 2-3 gives permafrost thicknesses for several places in the N.W.T. and Yukon.

Much of the N.W.T. lie within the continuous permafrost zone. In the Mackenzie Valley, the Mackenzie Delta and parts of the Arctic Islands, such as Banks Island, the permafrost is ice-rich and consists of thaw-sensitive, fine-grained sediments. By contrast, in parts of Keewatin and the eastern Arctic, permafrost occurs in coherent Shield rocks with low ice contents and with low thaw-sensitivity values.

Although much of Yukon falls into the discontinuous permafrost zone, permafrost is continuous in the extreme north, including the Eagle Plain, the Old Crow Basin and the northern Yukon coastal plain. Elsewhere, permafrost is widespread north of Dawson City becoming scattered and mostly restricted to north-facing slopes and poorly drained terrain in central Yukon. In southern Yukon, permafrost is most commonly associated with areas of organic materials which, because of their insulating qualities, inhibit the thawing of frozen ground.

In general, the southern limit of continuous permafrost in the N.W.T. coincides with the mean annual air temperature of -8.3°C, and the southern limit of

discontinuous permafrost with -1.0°C. In the mountainous regions of the interior of Yukon, permafrost conditions vary with both elevation and aspect. Usually, permafrost consists of a continuous zone at high elevations and below that, a discontinuous zone down to the lower limit of permafrost.

Permafrost terrain produces a number of distinct landforms. The most widespread are tundra *polygons*, formed by the thermal contraction of the ground in winter under the intense cold. Ice wedges, sometimes several metres deep and up to 1.5 m wide near the surface, may form over many hundreds or thousands of years. Other features are produced by the aggradation of ice within the frozen materials. *Pingos*, for example, are ice-cored hills or mounds often conical in form. The Mackenzie Delta has the largest concentration of these features in the world (over 1400) some of which rise more than 30 m above the level of the surrounding tundra. Numerous other types of frost mounds occur in permafrost terrain. They are usually smaller than pingos and include *palsas*, which grow through ice segregation beneath organic material and occur mostly in the discontinuous permafrost zone.

Thermokarst describes the landforms produced by the melt of permafrost. Typically, this process follows from disturbance of the thermal equilibrium of the permafrost. Man-induced thermokarst may result from the removal or destruction of surface vegetation. Mass wasting processes, manifested in several types of slope failure, are also important in northern Canada, especially in permafrost areas.

Frost shattering of exposed bedrock is widespread and produces *felsenmeer*, a field of angular blocks in areas of jointed bedrock. In some cases, isolated craggy pinnacles, or *tors*, are produced where the bedrock has been exposed to considerable weathering. Such phenomena are particularly conspicuous in the unglaciated interior Yukon, where bedrock exposures are common, and in the polar desert regions of the High Arctic.

In practical terms, the importance of permafrost cannot be overemphasized since it influences virtually all aspects of life in those regions which it underlies. Referring specifically to Alaska and to experience in constructing the Alaska Highway during World War II, S.W. Muller of the US Army Corps of Engineers wrote in 1947, "The destructive action of permafrost phenomena has materially impeded the colonization and development of extensive and potentially rich areas in the north. Roads, railroads, bridges, houses and factories have suffered deformation, at times beyond repair, because the condition of permafrost was not examined beforehand and because the behaviour of frozen ground was little if at all understood." (P. 1). While research in Canada in the last three decades has modified the last assertion, this general statement still holds true for much of northern Canada today.

In recent years, exploration for natural resources such as minerals and oil and gas has extended into the permafrost regions in Canada. Appreciation of permafrost conditions and the unique problems they present is essential if the environmental impact of such activities is to be minimized.

2.4.5 Vegetation

Woody species are important throughout most of the North. The two major biomes (a zone of related plants and animals determined by climate) in Canada's North — boreal forest, and treeless tundra — show how vegetation responds to a harsh climate. In the North this means long, severe, cold winters, and shorter growing seasons and cooler summers as latitude increases. Because there is permafrost throughout the North, vascular plants are limited to species with shallow rooting systems. Mean July temperatures (usually the warmest month) vary from biome to biome: greater than 13°C in the forested zone, 10°C near the tree line, 6° to 7°C for the limit of low, erect shrub tundra, 3°C for the limit of woody plants, to 1°C where the woody species are missing in the northern Arctic Archipelago. Many plants reach their physiological limits in the North. The boreal forest contains more than 350 vascular plant species, but the polar desert, where summers are coldest, has less than 35 species.

Different surface materials also influence vegetation. The acidic conifer needles litter the coniferous forest floor and produce acidic soils, even where the parent material (disintegrated rock that makes up the true soil) is alkaline. In the tundra zones, where there are no needles or little leaching (downward removal of plant nutrients), soils play an increasingly important role in controlling plant distribution. Thin, stony, acidic soils, typical of the Canadian Shield, commonly are carpeted with lichens, mosses with scattered shrubs, especially willow, birch and heaths, as well as grasses and sedges. Deeper and weakly developed alkaline soils derived from limestone have little lichen and moss cover. They usually, support the low, matted shrub Dryas (arctic avens), arctic willow and many calcium-loving herbs. Some highly alkaline soils composed of carbonate fragments support no vegetation.

The two major biomes can be subdivided into vegetation zones (Figure 2-7) based on the growth form of the main woody plants, as well as the number and types of associated species. The boundaries of these zones coincide with important differences in growth habits or species dominance.

BOREAL FOREST, the northernmost closed-canopy forest, occurs on the lower mountain slopes and valleys of the southern Yukon and southwestern N.W.T., around western Great Slave Lake, and north along the Mackenzie River to Norman Wells. The main forest species are shallow-rooted, needle-leafed conifers: black and white spruce, and to a lesser extent, tamarack and jackpine. Tree-sized alder (3m to 5m high), poplar, birch and willow are also present. Bogs with mosses, sedges and low shrubs form wherever drainage is poor; peat may accumulate as well. There are few vascular plant species in the mature closed forest, because the ground is continually shaded. Clearings and disturbed or freshly exposed habitats have the greatest number of different species.

FOREST-TUNDRA TRANSITION covers a 50-km to 600-km wide zone across the mainland, from the north-central Yukon and Mackenzie Delta to southern Keewatin. The trees in the open spruce forest to the south gradually become more dispersed and stunted farther north, until the terrain becomes a treeless tundra. The tree line, where trees no longer grow, forms the northern boundary of this zone.

Ground cover varies with soil content. Lichen carpets with sparse shrubs grow in thin, acidic soils; dense thickets of willow, birch and heath shrubs (such as Labrador tea, Lapland rosebay and blueberry) grow on thicker acidic soils. Shrubs and calcium loving herbs grow on neutral to weakly alkaline soils.

ALPINE TUNDRA is a complex of tundra communities found above the tree line. This vegetation zone occurs in the Northern Cordillera, from the Richardson and British mountains east to the Mackenzie and Franklin mountains of the western Mackenzie District. This zone contains a variety of erect, prostrate or matted evergreen and deciduous shrubs, sedges, grasses, herbs, mosses and lichens. Soils, sunlight and water all affect plant growth.

LOW ERECT SHRUB TUNDRA found in the warmest part of the Arctic, consists of low shrub thickets (generally less than 1 m high) of willow, dwarf birch and heaths. Shrub thickets are densest near the tree line in mesic (moderately moist) to imperfectly drained soils. At the northern limit of the zone, shrub thickets are confined to more sheltered sites, such as protected valleys. Prostrate shrubs such as arctic willow that has branches half a metre or more that trail along the ground, are common on drier, more exposed surfaces. Crowberry, heath shrubs, such as bearberry, arctic blueberry and arctic white heather, grow in shallow and exposed acidic soils. Such soils may also be nearly completely covered in lichen and moss. More alkaline soils support species that prefer calcium, such as willows and some herbs, such as oxytropes, licorice root, many mustards and composites and more soil tolerant species, such as arctic willow and tall grasses. Cotton-grass tussock tundra with low erect shrubs is common on imperfectly drained, fine-grained soils along the mainland coasts. Sedges and cotton grasses predominate on wetlands, as well as a variety of associated herbs such as marsh aquatics, grasses and rushes. Many wetlands contain a thick, mossy, peat-forming mat. Tree-sized willows (3m to 5m high) may grow along some river banks and sand bars in a few sheltered valleys.

DWARFED AND PROSTRATE SHRUB TUNDRA has similar vegetation to the low, erect shrub zone, but there are fewer species and sparser growth in the uplands and wetlands. Low, erect shrub species may still be present but are stunted forming low, compact, separate clumps less than 20 cm high, instead of dense intertwining canopies as in the low erect shrub tundra. Well-drained, exposed, acidic soils have lichen and moss carpets and a few heaths and deciduous shrubs, grasses and rushes. Dryas and arctic willow are still common in alkaline soils as are the calcium-loving herbs but legumes are rarer and purple saxifrage is more common. Cotton-grass tussock tundra still occurs on silts and clays, but with many fewer shrubs. Sedges still predominate in the wetlands, but the number of different sedges, aquatic and emergent species is less. A continuous thinner mossy layer, which may form peat, covers most wet soils.

The intermontane zone of the northwestern Queen Elizabeth Islands is also part of this zone because it has similar types of other wetland species and low species, although low erect shrub species do not currently grow there. A lack of seed source rather than the climate, may be why these shrubs are absent.

PROSTRATE SHRUB TUNDRA still supports Dryas and arctic willow as its main woody species; arctic white heather grows locally on weakly acidic soils. Species are fewer in number and many are absent, especially species capable of erect growth and herbaceous species, such as vetches, oxytrope, many composites and tussock cotton-grasses. Sedges are still predominant in the wetlands, but are limited to two to four species, and only a few aquatic and emergent species are present. Purple saxifrage is a common herb in the alkaline shrub tundra, grasses and rushes on acidic shrub tundra. A thin moss carpet covers many wetland soils but peat accumulates very slowly. The northern limit of this zone marks the limit of woody plant dominance, that is, the limit of "mini" forests.

HERB TUNDRA is restricted to regions with the coldest summers. Herbaceous species replace shrubs as the dominant flowering plant. Although it may be hard to determine what vegetation is dominant, grasses, rushes, chickweeds, poppy, drabas, brayas and saxifrages thrive throughout this zone. Purple saxifrage commonly grows in neutral to moderately alkaline soils, grasses and mustards in silt and clay, and rushes and grasses in acidic soils. Small, compact clumps of willow may occur, but are generally absent. The southern boundary of this zone is the northern limit for all woody species. Wetlands are dominated by grasses. Emergent or aquatic species are extremely rare. There is mossy ground cover along some water courses and sheltered slopes, but it is generally thin and discontinuous.

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Table 2-1A

Mean monthly and annual temperatures (°C) at selected weather stations, 1951-1981

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
YUKON													
Dawson	-28.6	-23.0	-14.1	-1.8	7.8	13.9	15.5	12.7	6.4	-3.2	-16.5	-25.3	-4.7
Snag	-28.2	-22.3	-13.9	-2.8	6.6	11.9	13.9	11.2	5.2	-5.3	-18.8	-27.3	-5.8
Watson Lake	-25.3	-18.3	-10.5	-0.6	7.4	13.2	14.9	13.0	7.8	0.1	-13.6	-22.6	-2.9
Whitehorse	-18.9	-13.2	-7.7	-0.1	7.1	12.4	14.1	12.3	7.8	0.7	-9.0	-15.8	-0.8
N.W.T.													
Aklavik	-28.6	-27.4	-22.3	-12.7	-0.4	9.6	13.8	10.8	3.6	-7.1	-19.5	-27.3	-8.9
Alert	-32.1	-33.3	-33.0	-24.7	-11.2	-0.6	3.9	0.9	-10.1	-19.7	-26.1	-29.8	-18.0
Arctic Bay	-29.8	-31.1	-27.7	-19.8	-7.6	2.1	5.8	4.8	-1.6	-11.1	-21.1	-26.8	-13.7
Baker Lake	-33.6	-32.8	-27.0	-17.6	-7.2	3.2	10.7	9.8	2.4	-7.5	-20.2	-27.5	-12.3
Cambridge Bay	-33.7	-34.6	-30.1	-22.2	-9.6	1.5	8.2	6.9	-0.5	-11.1	-23.8	-29.6	-14.9
Chesterfield	-31.8	-31.9	-25.7	-16.8	-6.8	2.4	8.7	8.3	2.6	-5.2	-16.9	-25.7	-11.6
Clyde River	-26.9	-27.4	-26.3	-18.7	-6.9	0.9	4.6	4.0	-0.1	-6.6	-16.9	-24.2	-12.1
Coppermine	-29.4	-30.9	-26.1	-17.7	-5.7	3.5	9.3	8.6	2.3	-6.3	-19.5	-25.7	-11.4
Coral Harbour	-30.4	-29.5	-24.5	-16.4	-6.5	2.0	8.6	7.5	1.0	-7.7	-17.1	-24.5	-11.4
Eureka	-36.6	-37.7	-36.7	-27.6	-10.1	2.3	5.5	3.6	-7.7	-21.8	-30.7	-34.8	-19.3
Fort Reliance	-30.1	-27.5	-21.8	-10.2	0.9	8.7	13.3	12.8	6.2	-2.0	-14.1	-23.7	-7.3
Fort Simpson	-26.0	-23.3	-15.0	-3.8	7.8	14.3	16.8	14.6	7.7	-1.2	-14.2	-23.8	-3.8
Fort Smith	-26.9	-22.6	-14.6	-3.2	7.1	13.1	16.1	14.3	7.7	0.5	-11.8	-21.4	-3.5
Hall Beach	-31.7	-31.6	-28.3	-20.0	-8.8	0.3	5.4	4.9	-0.6	-10.2	-20.9	-26.9	-14.0
Iqaluit	-26.2	-25.2	-22.3	-14.0	-3.3	3.5	7.9	6.9	2.4	-4.7	-12.4	-20.3	-8.9
Isachsen	-35.1	-36.4	-34.3	-25.6	-11.7	-0.8	3.3	1.1	-8.8	-19.4	-28.2	-32.5	-19.1
Mould Bay	-33.8	-35.6	-32.4	-23.6	-10.9	-0.3	3.7	1.7	-6.6	-17.8	-25.6	-31.3	-17.8
Norman Wells	-28.7	-25.6	-18.9	-7.4	5.1	13.7	16.1	13.2	5.8	-4.1	-18.1	-25.9	-6.3
Nottingham Island	-24.5	-24.3	-20.2	-12.8	-4.2	1.6	5.9	5.7	1.5	-3.4	-10.2	-18.1	-8.6
Resolute	-32.6	-33.5	-31.1	-23.1	-10.7	-0.3	4.3	2.7	-4.9	-14.7	-24.2	-28.8	-16.4
Sachs Harbour	-29.7	-30.9	-27.3	-19.2	-7.3	2.2	5.6	4.3	-1.8	-11.6	-21.7	-26.7	-13.7
Yellowknife	-28.6	-25.7	-18.6	-7.8	4.0	12.2	16.0	14.1	6.8	-1.2	-14.2	-23.8	-5.6

Source: Environment Canada, Atmospheric Environment Service, Canadian Climate Centre, Downsview, Ontario.

Table 2-1B

Mean monthly and annual precipitation (mm) at selected weather stations, 1951-1981

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
YUKON													
Dawson	19.3	16.0	12.7	9.1	21.8	36.8	53.1	50.6	28.5	26.7	25.2	25.7	325.5
Snag	21.1	17.0	15.8	15.0	30.5	55.4	69.9	44.5	28.5	20.1	21.1	21.1	360.0
Watson Lake	35.1	28.2	23.9	18.3	23.1	48.8	53.1	44.7	43.2	34.8	37.9	41.2	432.3
Whitehorse	18.5	14.0	14.7	10.7	13.5	28.7	33.3	36.1	29.0	19.8	22.4	19.6	260.3
N.W.T.													
Aklavik	11.9	10.7	11.2	8.1	8.1	18.3	33.8	36.1	20.1	32.3	21.1	24.4	236.1
Alert	7.6	5.3	7.1	6.6	10.7	13.5	18.0	27.4	27.9	15.8	8.1	8.1	156.1
Arctic Bay	5.8	4.3	5.6	4.1	6.6	7.6	19.3	24.1	21.6	15.2	6.9	4.6	125.7
Baker Lake	7.1	5.6	9.7	13.0	9.4	16.0	35.6	34.5	33.8	25.9	16.3	6.1	213.0
Cambridge Bay	5.3	4.1	5.6	5.8	7.9	13.5	22.1	26.2	16.3	15.8	8.9	5.6	137.1
Chesterfield	7.6	5.1	10.2	13.0	15.8	25.9	41.4	37.3	40.4	31.5	20.8	14.5	263.5
Clyde River	10.9	6.6	5.1	8.4	14.0	10.7	23.4	30.2	38.6	32.5	18.3	7.6	206.3
Coppermine	10.4	5.8	11.2	10.4	11.2	16.8	33.5	39.9	27.2	25.2	14.5	10.2	216.3
Coral Harbour	8.6	10.2	11.7	14.7	17.5	26.4	40.4	43.9	34.5	30.0	17.8	11.4	267.1
Eureka	2.8	2.3	1.5	2.0	2.8	3.8	13.0	9.1	10.2	6.1	2.8	2.0	58.4
Fort Reliance	12.5	9.4	8.4	9.9	10.9	23.9	33.5	30.2	30.0	26.7	20.3	14.0	229.7
Fort Simpson	20.8	14.5	18.5	21.6	20.8	43.7	49.8	46.7	40.4	26.2	23.4	19.1	345.5
Fort Smith	17.5	15.5	14.5	17.5	24.6	33.8	52.8	37.9	37.6	28.7	27.7	23.1	331.2
Hall Beach	9.1	9.9	8.9	9.7	16.0	12.2	28.7	31.8	18.0	22.6	15.5	9.9	192.3
Iqaluit	24.4	27.9	20.6	22.4	22.9	37.9	53.1	57.9	43.4	41.7	36.8	26.2	415.2
Isachsen	2.3	2.3	2.3	3.8	9.1	7.6	21.1	21.8	15.5	9.9	4.3	2.3	102.3
Mould Bay	2.3	2.0	2.5	2.5	6.9	6.1	16.8	20.3	12.7	8.4	2.8	3.1	86.4
Norman Wells	20.8	17.3	12.5	14.2	15.2	36.6	56.1	61.7	33.8	25.2	21.8	19.3	334.5
Nottingham Island	12.5	11.7	9.9	14.5	16.5	21.6	31.2	35.8	37.1	33.5	29.2	16.3	269.8
Resolute	2.8	3.3	3.1	5.8	8.6	12.5	26.4	30.5	17.8	15.2	5.6	4.8	136.4
Sachs Harbour	2.3	2.3	2.5	2.5	7.4	7.9	18.3	22.1	13.5	13.5	6.4	3.8	102.5
Yellowknife	13.7	12.2	11.7	10.2	14.0	17.3	33.3	36.3	28.2	30.7	23.9	18.5	250.0

Source: Environment Canada, Atmospheric Environment Service, Canadian Climate Centre, Downsview, Ontario.

Table 2-2

Mean break-up and freeze-up dates in Yukon and N.W.T. locations

Location	Break-up*	Freeze-up**
Yukon		
Liard River at Watson Lake	May 13	Nov 13
Stewart River at Mayo	May 17	Nov 14
Teslin Lake at Teslin	Jun 2	Dec 9
Yukon River at Dawson City	May 15	Nov 11
Yukon River at Whitehorse	Apr 28	Dec 5
N.W.T.		
Baker Lake	Jul 23	Oct 24
Cambridge Bay at Cambridge Bay	Jul 19	Oct 10
Coppermine River at Coppermine	Jun 19	Oct 24
Dumbell Bay at Alert	Jul 30	Sep 5
Ennadai Lake at Ennadai	Jul 4	Oct 22
Foxe Basin at Hall Beach	Jul 19	Nov 1
Great Bear Lake at Port Radium	Jul 9	Nov 24
Koojessie Inlet at Iqaluit	Jul 16	Nov 17
Kugmallit Bay at Tuktoyaktuk	Jun 26	Oct 18
Liard River at Fort Liard	May 6	Nov 13
Mould Bay at Mould Bay	Aug 8	Sep 20
Patricia Bay at Clyde Inlet	Aug 2	Nov 7
Resolute Bay at Resolute	Aug 5	Sep 28
Sachs Harbour at Sachs Harbour	Jul 7	Sep 25
Slidre Fiord at Eureka	Jul 27	Sep 15
South Bay at Coral Harbour	Jul 15	Nov 4
Spurrel Harbour at Chesterfield Inlet	Jul 13	Nov 10

* Break-up is the date the water was completely clear of ice.

** Freeze-up is the date the water was completely frozen over.

Note: The mean number of years for observing both break-up and freeze-up is 27. Most locations missed between one and three years of observation. Some N.W.T. locations missed many years of observation. During freeze-up, Port Radium, missed 8 years and Hall Beach missed 10 years. During break-up, Port Radium and Alert each missed 8 years of observation, Hall Beach missed 9 years and Mould Bay missed 18 years.

Alert is a DND establishment located on Ellesmere Island. Ennadai Lake is located about 370 km west of Arviat.

Source: Environment Canada, Atmospheric Environment Service, Canadian Climate Centre, Downsview, Ontario.

Table 2-3

Representative permafrost thicknesses and temperatures in various Yukon and N.W.T. locations

Location	Thickness of permafrost (m)	Mean annual ground surface temperature (°C)
YUKON		
Arctic Coastal Plain	160-250	-5.0 to -10.0
Dawson City	60	-2.0
Eagle River Bridge, Dempster Highway	90	-2.5
United Keno Hill Mines Ltd.	135	-1.5
N.W.T.		
Baker Lake	250	n.a.
Contwoyto Lake (Lupin Mine)	500	-9.0
Coppermine	300-450	-4.5 to -8.0
Eureka (Foshein Peninsula)	500	-15.0 to -16.0
Fort Good Hope	50-100	-1.0 to -2.0
Fort McPherson	90-150	-2.6 to -4.5
Fort Simpson	0-15	-5.0 to 2.0
Hall Beach	400	-10.0
Inuvik	360	-4.0
Isachsen (Ellef Ringnes Island)	250-660	-14.0 to -17.0
Mould Bay (Prince Patrick Island)	480	-15.0 to -16.0
Norman Wells	42-76	-2.5 to -0.7
Polaris Mine (Little Cornwallis Island)	330-570	-13.0 to -16.0
Rankin Inlet	350	-7.0
Resolute Bay (Cornwallis Island)	380-600	-13.0 to -16.0
Richards Island	350-750	-5.0 to -10.0
Tuktoyaktuk	400-600	-8.0
Yellowknife	0-60	-0.5 to 1.8

Source: Geological Survey of Canada, Permafrost Research Section, 1989.

Figure 2-1
Duration of Daylight Through Year
as a Function of Latitude

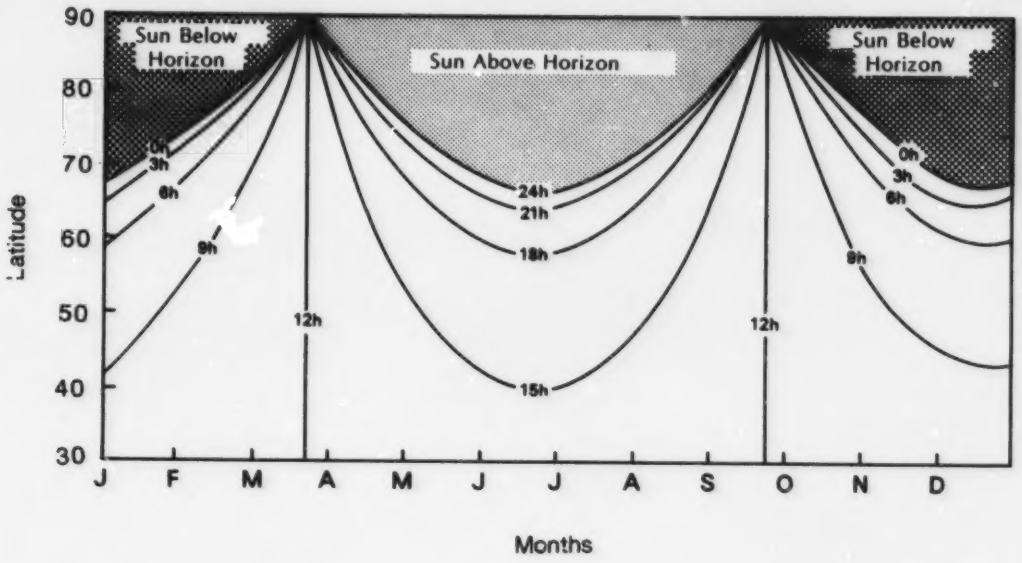
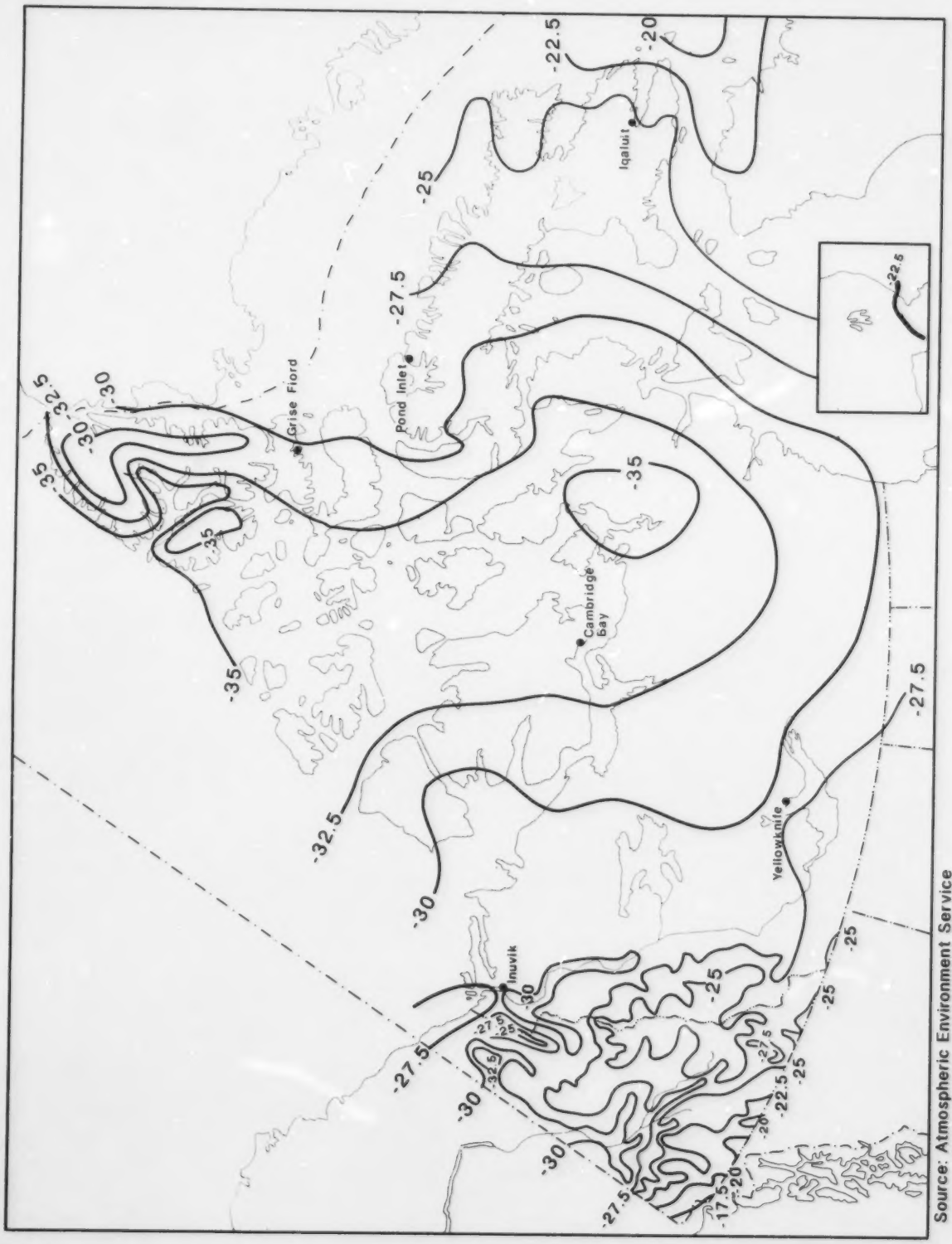


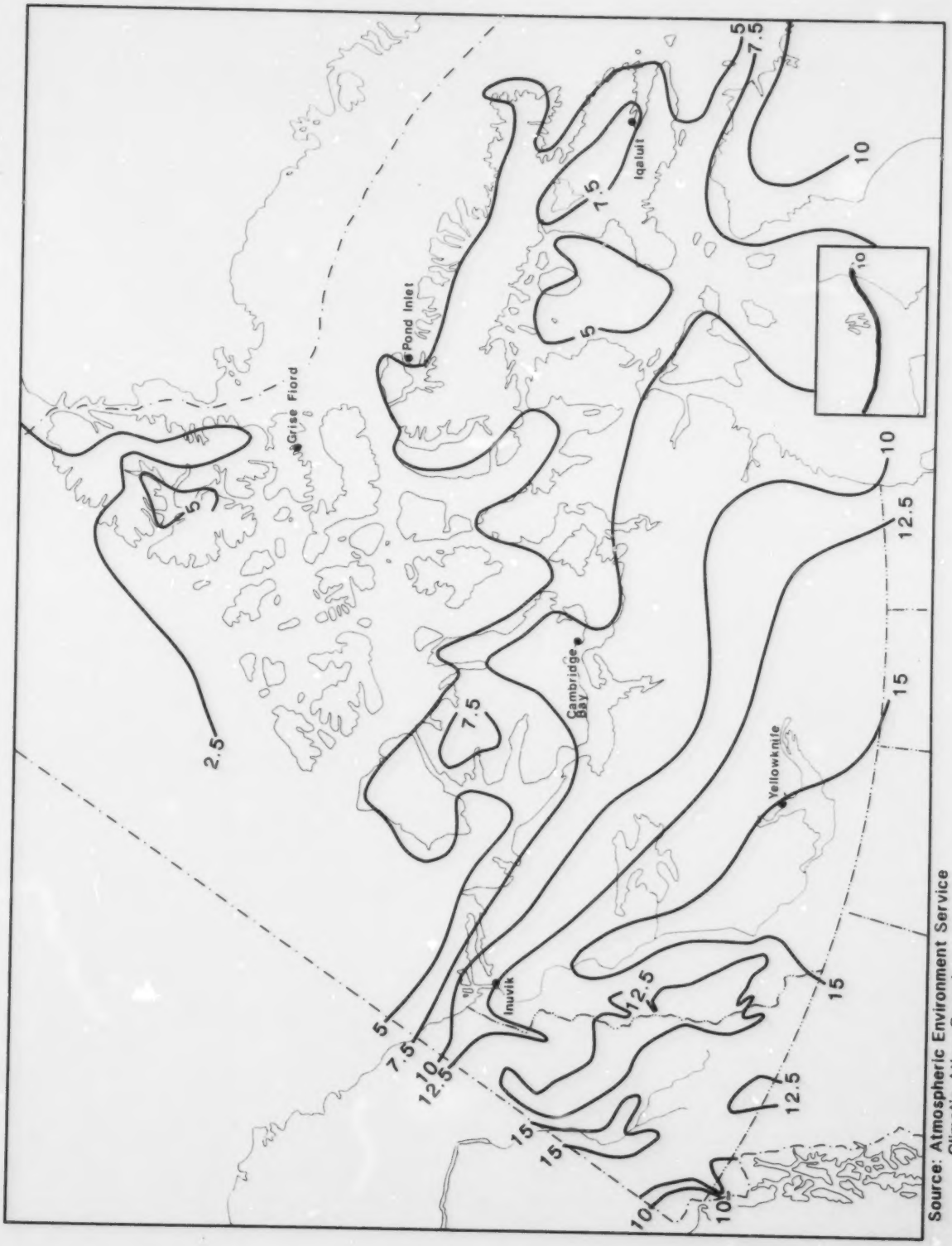
Figure 2-2A
Mean Daily Temperatures in Northern Canada, January
Degrees Celsius



Source: Atmospheric Environment Service
Climatic Atlas, Canada

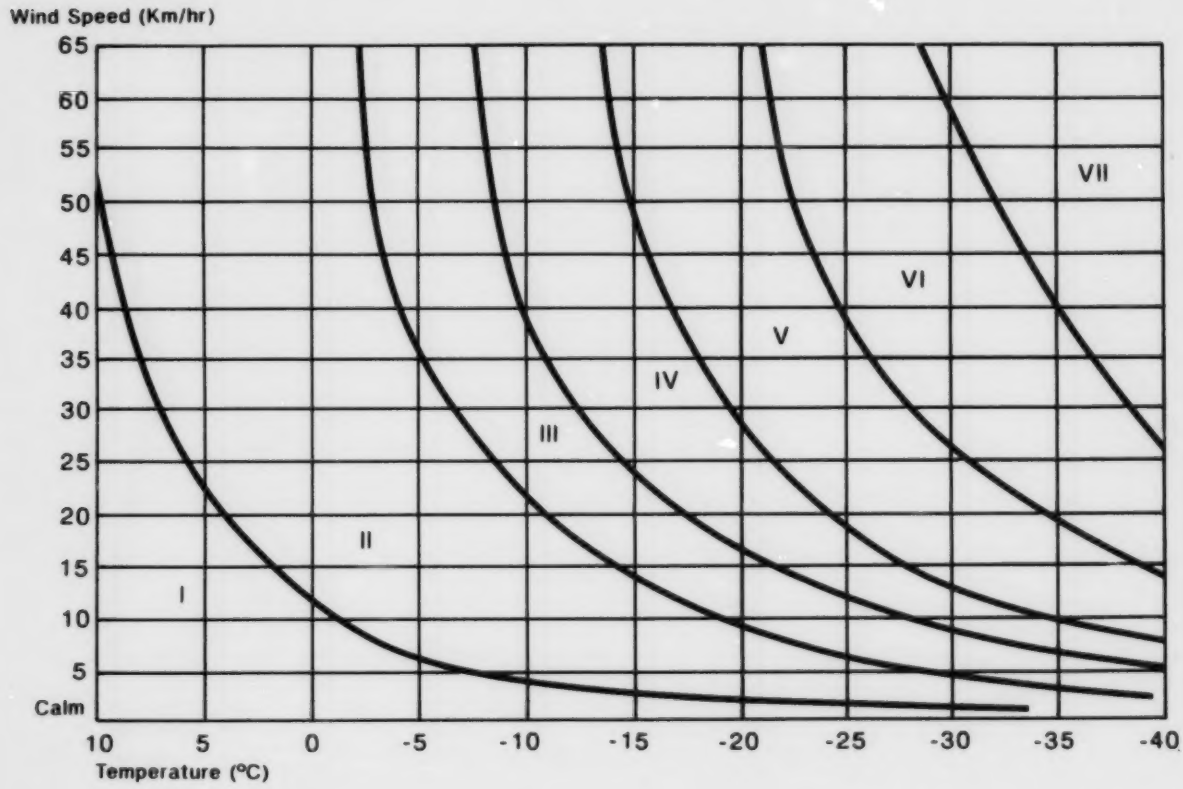
Figure 2-2B

Mean Daily Temperatures in Northern Canada, July
Degrees Celsius



Source: Atmospheric Environment Service
Climatic Atlas, Canada

Figure 2-3
Temperature / Wind Chill Index
Wind Speed (km/hr)

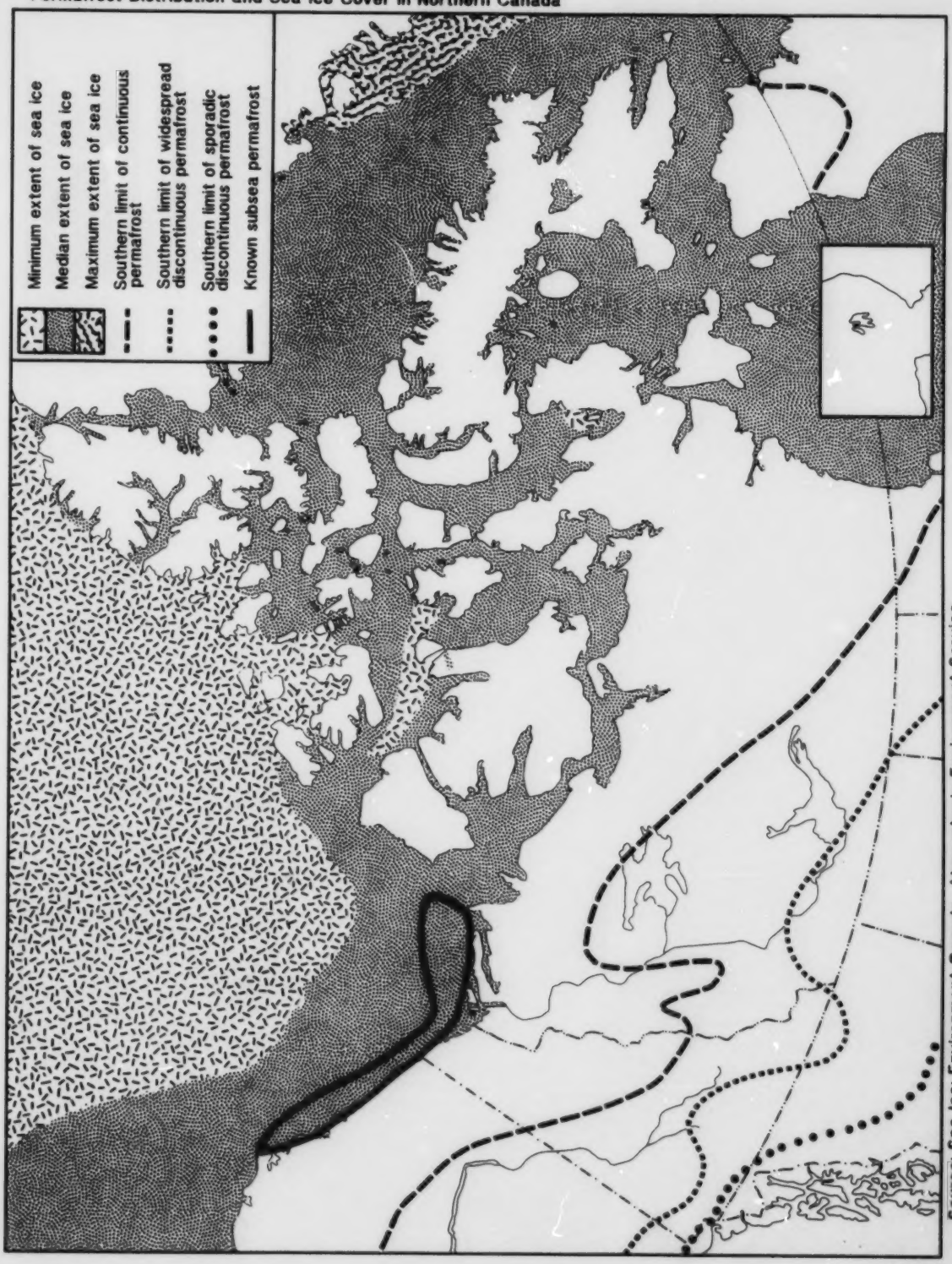


How to read your Wind-Chill Chart: Use this chart in the same manner as a grid map, i.e. read horizontally the temperature and the wind velocity vertically. The point of intersection is the wind chill factor. For example, if the wind were 30 km/h and the temperature -25°C, the wind-chill index would be V.

I	Confortable with normal precaution.
II	Work and travel become uncomfortable unless properly clothed.
III	Work and travel become more hazardous unless properly clothed. Heavy outer clothing necessary.
IV	Unprotected skin will freeze with direct exposure over prolonged period. Heavy outer clothing becomes mandatory.
V	Unprotected skin can freeze in one minute with direct exposure. Multiple layers of clothing mandatory. Adequate face protection becomes important. Work and travel alone not advisable.
VI	Adequate face protection becomes mandatory. Work and travel alone prohibited. Supervisors must control exposure times by careful work scheduling.
VII	Personnel become easily fatigued. Buddy system & observation mandatory.

Note: Proper clothing simply means protecting all skin areas from direct wind with sufficient thickness to prevent undue coldness.

Figure 2-4
Permafrost Distribution and Sea Ice Cover in Northern Canada


Minimum extent of sea ice
Median extent of sea ice
Maximum extent of sea ice
Southern limit of continuous permafrost
Southern limit of widespread discontinuous permafrost
Southern limit of sporadic discontinuous permafrost
Known subsea permafrost

Source: Sea ice; Environment Canada, Atmospheric Environment Service
Permafrost; Geological Survey of Canada, permission of J.A. Heginbottom

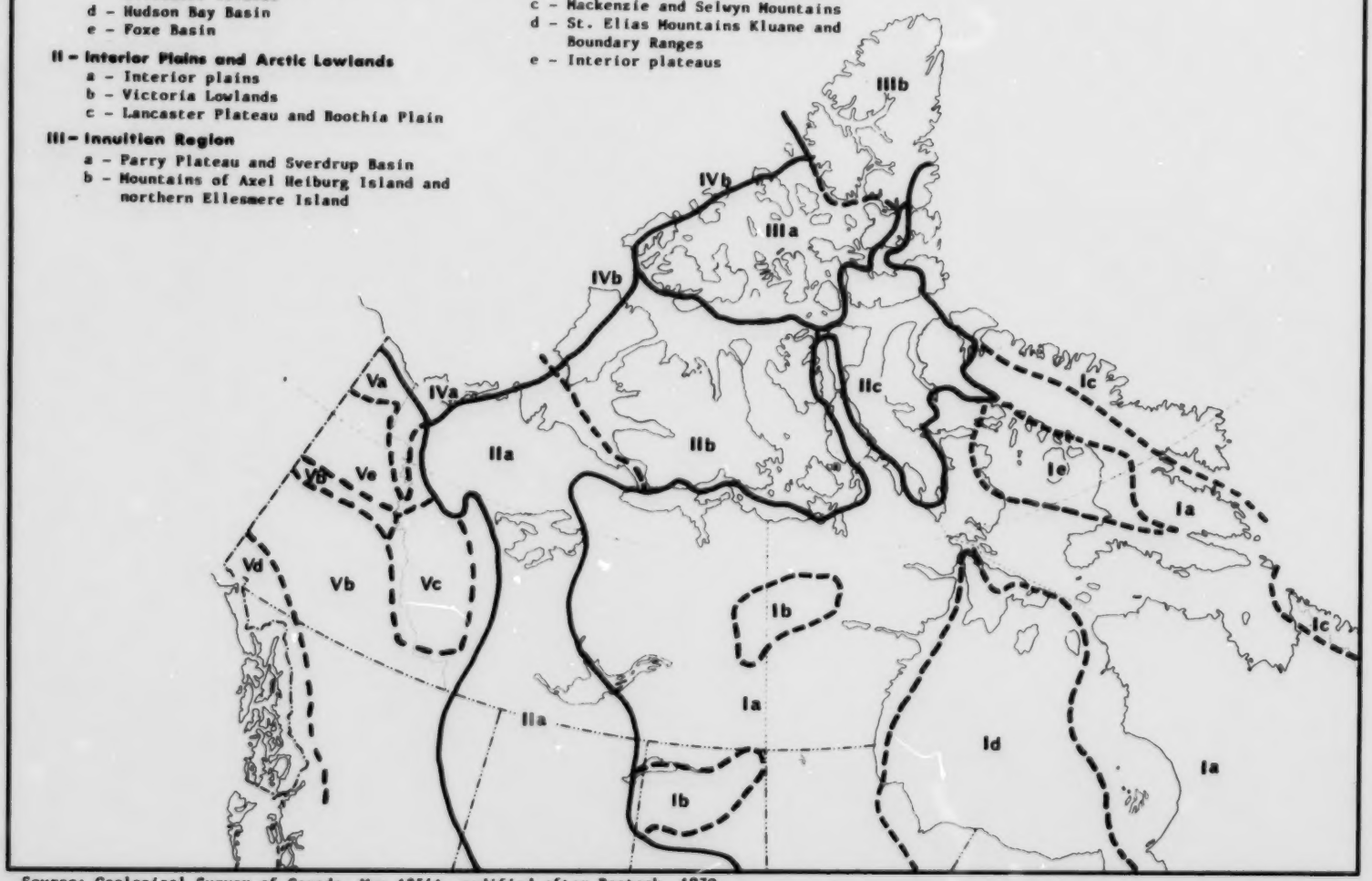
I – Canadian Shield
- a – Lowlands, hills and plateaus: Central Keewatin and Mackenzie District, Northern Quebec, Central Baffin Island
- b – Sandstone plains Central Keewatin and Northern Saskatchewan
- c – Mountains of E. Baffin, Devon and Ellesmere Islands
- d – Hudson Bay Basin
- e – Foxe Basin

II – Interior Plains and Arctic Lowlands
- a – Interior plains
- b – Victoria Lowlands
- c – Lancaster Plateau and Boothia Plain

III – Innuitian Region
- a – Parry Plateau and Sverdrup Basin
- b – Mountains of Axel Heiburg Island and northern Ellesmere Island

IV – Arctic Coastal Plain
- a – Mackenzie Delta and northern Yukon coastal plain
- b – Western Arctic Islands coastal plain

V – Northwestern Cordillera
- a – British and Richardson Mountains
- b – Ogilvie and Wernecke Mountains
- c – Mackenzie and Selwyn Mountains
- d – St. Elias Mountains Kluane and Boundary Ranges
- e – Interior plateaus



Source: Geological Survey of Canada, Map 1254A, modified after Bostock, 1970

Figure 2-5
Physiographic Regions of Northern Canada

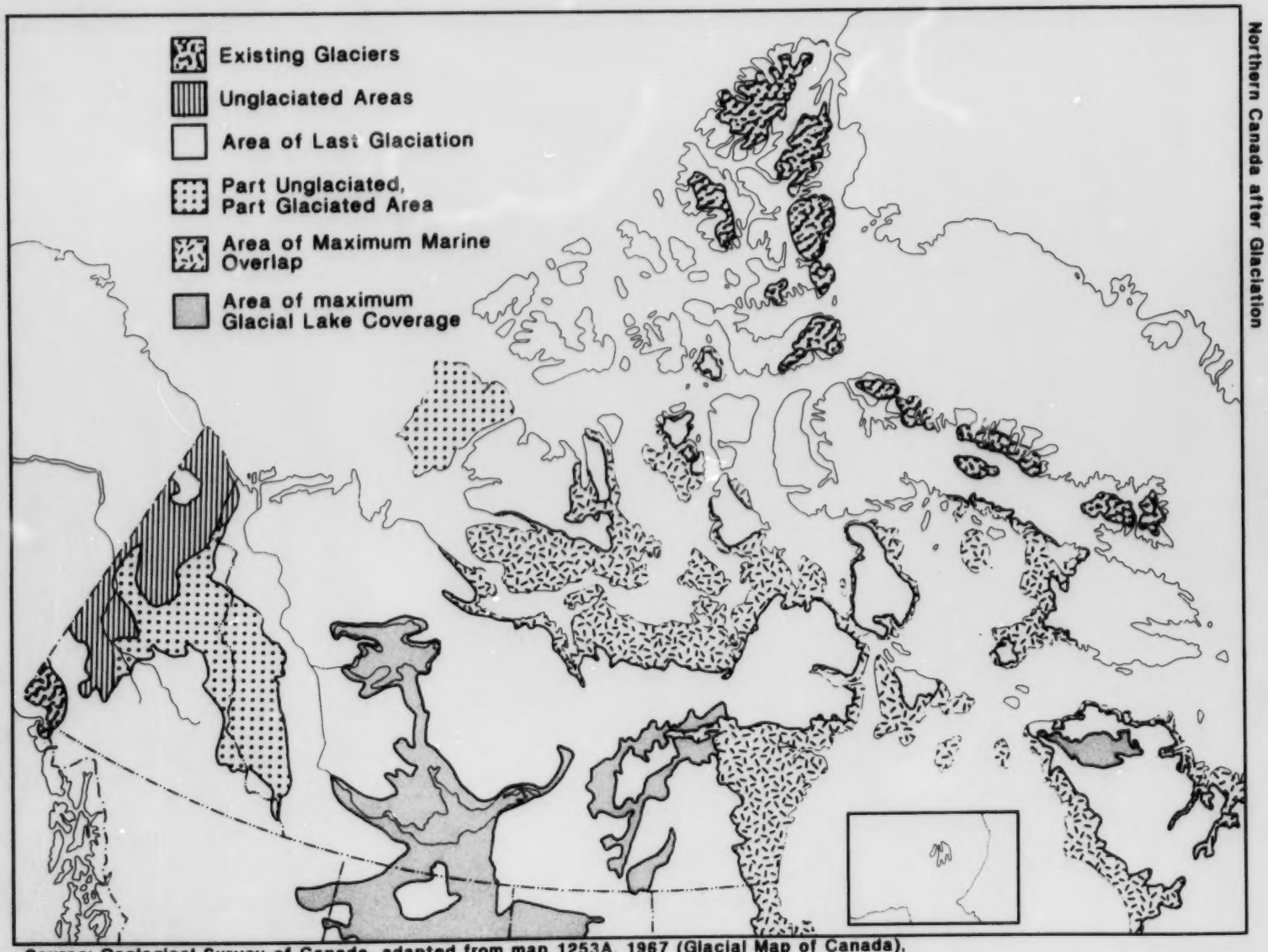
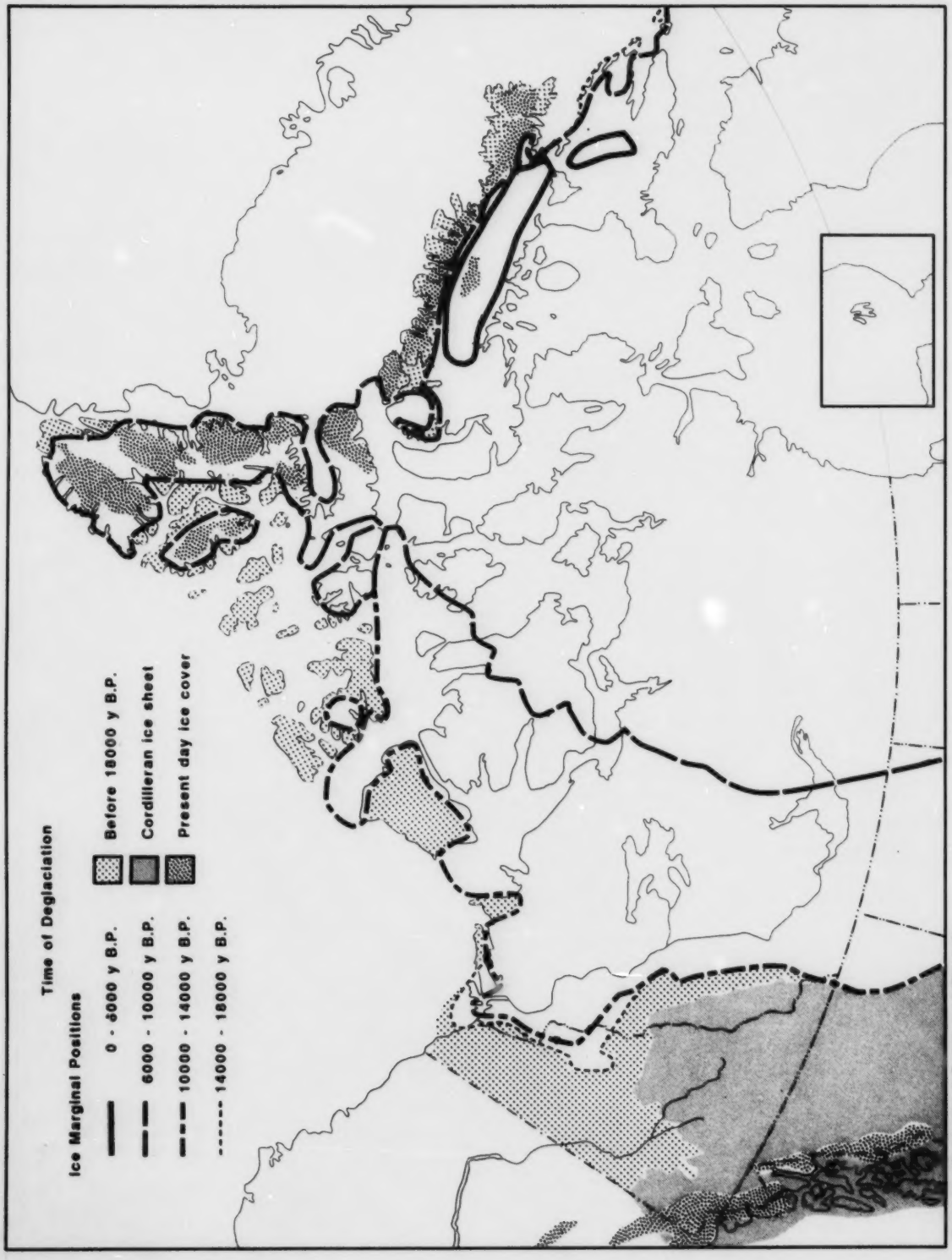

Existing Glaciers
Unglaciated Areas
Area of Last Glaciation
Part Unglaciated, Part Glaciated Area
Area of Maximum Marine Overlap
Area of maximum Glacial Lake Coverage

Figure 2-6A
Northern Canada after Glaciation

Source: Geological Survey of Canada, adapted from map 1253A, 1967 (Glacial Map of Canada), compiled by V.K. Prest, R.D. Grant, and V.N. Rampton.

Figure 2-6B
Stages in the Last Deglaciation of Northern Canada


Time of Deglaciation
Ice Marginal Positions
0 - 6000 y B.P.
6000 - 10000 y B.P.
10000 - 14000 y B.P.
14000 - 18000 y B.P.
Before 18000 y B.P.
Cordilleran ice sheet
Present day ice cover

Source: Geological Survey of Canada
Adapted from Map 1702A, 1986
Compiled by A.S. Dyke and V.K. Prest

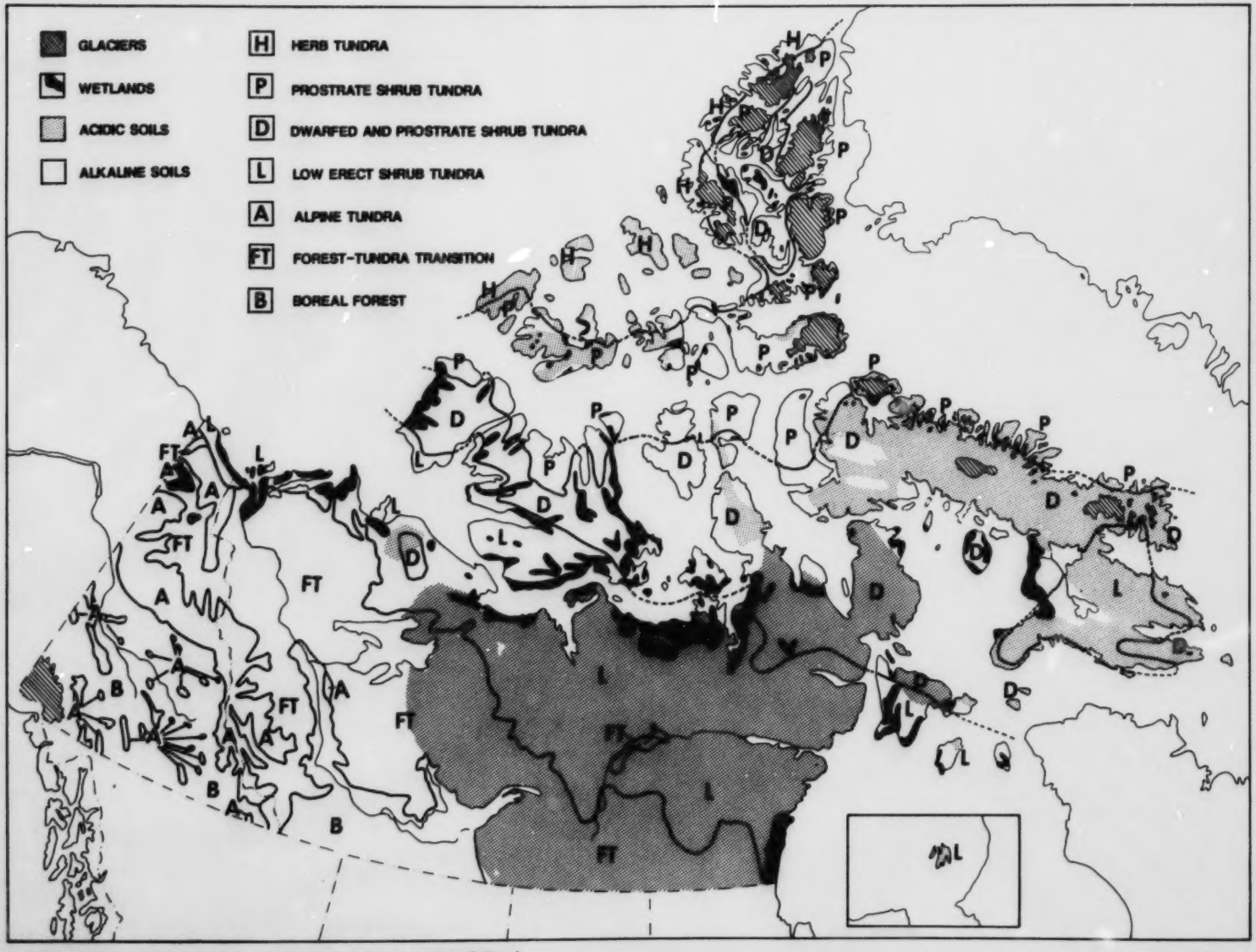


Figure 2-7
Major Vegetation Zones in Northern Canada

Source: Geological Survey of Canada, compiled by S.A. Edlund

3.0 People

3.1 Northern Settlements

Statistics Canada placed the 1986 population of the N.W.T. at 52,238 and Yukon at 23,507. The current (1988) population estimate for the N.W.T. is 52,298 according to Statistics Canada. There are 13,011 people living in the city of Yellowknife representing 25 per cent of the total number of N.W.T. residents. Another 21 per cent live in the towns of Iqaluit (3,039), Fort Smith (2,505), Hay River (2,827) and Inuvik, (2,670). Two per cent of the population resides in one village, Fort Simpson, 39 per cent in hamlets and about 10 per cent in settlements. A small number (about three per cent of the territorial population) lives in "unorganized" communities or the Hay River Indian reserve. See Table 3-1.

The current (1988) estimated population of the Yukon is 25,300 according to Statistics Canada, and 29,493 according to the Yukon Bureau of Statistics. There are 19,836 people living in Whitehorse, representing 73 per cent of the total number of Yukon residents. Another 17 per cent live in the towns of Watson Lake (1,656), Dawson City (1,620) and Faro (1,297). Seven per cent of the population live in the villages of Carmacks (286), Haines Junction (578), Mayo (505) and Teslin (455). The remainder, about three per cent, live in recognized unincorporated communities and rural areas. See Table 3-2.

3.1.1 Northwest Territories

To attain city status, a N.W.T. community must have assessable land valued in excess of $200 million. Towns must have assessable land valued over $50 million. Residents elect a mayor and eight council members and are responsible for setting their own municipal budgets and raising revenues through local taxation, sale of licences, payments of fines and fees and sales of debentures. Villages must have assessable land valued at more than $10 million and are responsible for setting their own budgets. Revenue sources are the same as for cities and towns but villages have a smaller tax base.

If residents of a settlement want to establish a settlement corporation, the Minister of Municipal and Community Affairs may, by order, establish one. Hamlets are established by order, after the minister has given public notice and considered any objections. Hamlets exercise powers and perform duties by resolution or by-law. Most communities in the N.W.T. are hamlets with an elected mayor and eight councillors. Their main source of revenue is the hamlet operating contribution provided by the Government of the N.W.T.. Hamlets also raise revenue through services, licence fees and fines. Settlements qualify for per capita grants up to a maximum of $12,000 per year and can use the funds for community projects.

The smallest communities, with no externally accountable political or municipal structure, are the "outpost camps" (which number about twelve) all operating in the eastern Arctic. They receive small incentive grants and transportation and fuel subsidies but achieve a high degree of self-sufficiency in terms of maintaining small, viable communities. There are no schools, health or other government services provided at these outpost camps, though visits from government agencies and departments may take place irregularly a few times a year.

There are several small-sized communities (usually with fewer than 100 residents) which have variable levels of infrastructure provided. For example, Colville Lake, N.W.T., with a population of about 52, is a small Dene community without electricity, telephones, nursing station, school or government personnel. Jean Marie River, another small Dene community with a population of 66, has a school and enjoys electric power and television reception. Grise Fiord, an Inuit community with about 76 residents, has a resident nurse, a school, an RCMP detachment and telephone service as well as television.

Settlements and hamlets with populations of over 150 residents generally have retail outlets, health, education and social services, and are usually served by air carriers licensed to provide point-to-point service. Most have TV, radio and postal services and many have telephones. All communities support local religious organizations. Figure 3-1 presents all of the communities in the N.W.T. as presented in Table 3-1. "Outpost camps" are not included.

3.1.2 Yukon

In Yukon, communities are classed as municipalities, recognized unincorporated communities or rural areas. Municipalities are classified as cities, towns, villages or hamlets.

A community is given city status when it has more than 2,500 residents; towns must have between 500 and 3,000 residents and villages must have between 300 and 1,000 residents. Hamlets do not require a minimum or maximum population. All communities elect mayors. Cities elect six councillors, and towns and villages elect four.

Yukon has one city, Whitehorse; three towns, Watson Lake, Dawson City and Faro; and four villages, Carmacks, Haines Junction, Mayo and Teslin. Most roads and streets are surfaced with a mixture of bitumen and gravel, about 2.5 cm thick. All municipalities have fire protection service, water supply and sewage disposal facilities.

A hamlet, Elsa, was located on private land and administered by United Keno Hill Mines. The Yukon government provided police, public health protection and education services. The local government consisted of an advisory council to the Minister of Community and Transportation Services. The hamlet was closed in 1989 when the mine suspended operations.

Yukon has 11 recognized unincorporated communities: Old Crow, Beaver Creek, Burwash Landing, Destruction Bay, Keno, Pelly Crossing, Carcross, Stewart Crossing, Swift River, Upper Liard and Ross River. These communities have smaller populations than municipalities and no local government structure.

Yukon has four rural areas around Whitehorse, two near Watson Lake, two near Dawson City and one near Teslin. Tagish is also a rural area. Rural areas are usually recognized as regions if the land is used primarily for agriculture or recreation. Figure 3-1 presents a map of all Yukon communities and Table 3-2 presents the population of all Yukon communities.

3.2 Population, Mortality and Morbidity Characteristics

The population in the Northwest Territories is young with just over 20 per cent of people of elementary school age (5-14 years) and about 12 per cent in the preschool group (0-4 years). The population 65 years of age or older makes up less than 3 per cent of the population. The remainder, some 64 per cent of the total N.W.T. population is of working age (15-64).

Despite a falling birth rate among the non-native group within the N.W.T., birth rates among native groups show no sign of falling. The number of live births increased from 1,362 in 1982 to 1,477 in 1988. The rate per 1,000 of population has decreased slightly, from 28.7 per thousand in 1982 to 28.2 per thousand in 1988. The Canadian rate in 1982 was 15.2 live births per thousand of population and 14.4 in 1988. The number of deaths in 1982 was 232. This declined to 229 in 1988. The rate, per 1,000 population, declined from 4.9 to 4.4. During the same period the Canadian rate remained constant, at 7.1.

In 1988, 3,704 people moved to the N.W.T. About 4,086 people left the N.W.T. in that year. The net migration was -382. This was considerably less than the previous three years when net migrations were -1,075 in 1987; -1,822 in 1986; and -558 in 1985.

In Yukon, about 24 per cent of the population is less than 15 years of age. Fifteen per cent of the population is of elementary school age. Less than four per cent of the population is 65 years of age or older. Birth rates have also declined. In 1982 the number of live births was 525, and by 1988 live births had decreased to 524. The rate, per thousand of population in 1982 was 22.0, but by 1988 it was 20.7. However, this rate is 44 per cent higher than the Canadian rate for 1988. The number of deaths in 1982 was 118 and in 1987 deaths totalled 117. The rate, per thousand of population, was 4.9 in 1982 and 4.6 in 1988.

In 1988, 2,681 people moved to Yukon. During the same period 2,396 people left Yukon. This resulted in a net migration of 285. It was less than 1987 when the net migration was 309. In 1986 the net migration was 179. This was in sharp contrast to 1985 when the net migration was -743.

Changes in lifestyles and diets have led to changes in the types of diseases. Tuberculosis deaths have declined markedly. About 30 years ago the rate of tuberculosis deaths per 100,000 population was high in both territories, compared with the rate for all Canada. Since then these deaths have declined significantly. Some forms of tuberculosis have been effectively eradicated (see Table 3-3). However, new active and reactivated cases of tuberculosis in the North persist. Table 3-4 shows the number of cases and rates per 100,000 for the N.W.T. and Yukon compared with all of Canada. The N.W.T. rate has been higher than the Yukon rate and rates in Yukon and the N.W.T. have generally been higher than in all of Canada.

Sexually transmitted diseases in the North are high when measured by the number of reported cases per 100,000. Since the mid 1970s, Gonorrhea has declined in both territories, but especially in Yukon. The number of syphilis cases was high in both territories throughout the 1960s, but has declined in the 1980s (see Table 3-5). In 1987 the N.W.T. had one case of acquired immune deficiency syndrome (AIDS) and in 1988 Yukon had one case.

In the N.W.T. cancer causes almost 17 per cent of Inuit deaths and 12 per cent of registered Indian deaths. Inuit have a higher cancer mortality rate than Indians, but a lower rate than for all Canadians. Among Inuit, cancer morbidity has been increasing. In the western and central Arctic, tumors of the salivary glands, kidney and nasopharynx were the most common cancers from 1950 to 1966. These types have declined, and lung, cervical and colorectal cancers are now the most common.

The leading cause of death for native people is injury and poisoning. From 1980 to 1984 injury and poisoning accounted for 26 per cent of the deaths among registered Indians in the N.W.T.; 70 per cent of these deaths were incidents involving drowning, motor vehicles, exposure or firearms. Amont Inuit in the N.W.T., 29 per cent of deaths between 1980 and 1984 were caused by injury or poisoning, involving motor vehicle accidents (17 per cent), firearms (17 per cent), drownings (11 per cent), overdoses (6 per cent), exposure (9 per cent) and fire (12 per cent). In Yukon injury and poisoning caused 43 per cent of the deaths among registered Indians. Of these, 67 per cent involved motor vehicle accidents, firearms, drownings and suicide-related drug overdoses.

Other leading causes of death were circulatory and respiratory diseases. In the N.W.T. from 1980 to 1984, circulatory diseases caused 24 per cent of the deaths of registered Indians and almost 16 per cent of Inuit deaths. Thirteen per cent of Inuit deaths were from respiratory diseases. In Yukon 21 per cent of registered Indians died from circulatory diseases and 12 per cent from respiratory diseases.

3.3 Ethnicity

3.3.1 Aboriginal Peoples

Aboriginal peoples include four groups: status Indians, Metis, non-status Indians and Inuit. A status Indian is registered as an Indian, according to the *Indian Act* of 1874, as amended, which specifies who is entitled to be registered as an Indian. The Act also stipulates that Indian and Northern Affairs Canada must maintain an Indian Register, which records the names of every person who is entitled to be registered as a status Indian.

Indian status under the *Indian Act* entitles the person to several legal rights, including:

- any benefits promised in a treaty, including the right to hunt, fish and trap for food;

- financial aid, e.g., tuition and living allowance while attending post-secondary education;
- tax-exempt status for income earned on a reserve;
- economic development assistance; and
- the right to request, with other status Indians, that the minister constitute a new band from the Indian Register.

Important changes were made to Canada's *Indian Act* in 1985, when Parliament passed Bill C-31, an *Act to Amend the Indian Act* (S.C. 1985, C.27). The old *Indian Act* had inequities in determining registration, band membership, the enfranchisement process and bylaw powers on reserves.

The most important effect of Bill C-31 is how it changed the registration system. Before its amendments, the *Indian Act* excluded from registration: Indian women who married non-Indians; at age 21, persons whose mother and paternal grandmother were not born Indians; descendants of persons allotted "half-breed land or money scrip" (Section 12) (i.e., Metis); and persons who became enfranchised. Children born out of wedlock were treated differently depending on whether their mother or father was an Indian. Bill C-31, made the registration system more equitable. It now treats men and women equally; treats children equally born either in or out of wedlock and either natural or adopted; prevents the gain or loss of status through marriage; and restores Indian status to those who lost it through discrimination or enfranchisement. The Act also permits the registration of first-generation descendants (and in some cases descendants of subsequent generations) of persons with restored status, and usually of children born out of wedlock to at least one Indian parent.

Reinstating individuals to Indian status began in June 1985 after Parliament approved Bill C-31. As of December 31, 1988, 785 people had recovered Indian status in the N.W.T., and 1,452 had in the Yukon. These names have been added to the Indian Register.

The Indian Register contains the names of 9,936 status Indians in the N.W.T. and 5,510 status Indians in Yukon as of December 31, 1988. Some status Indians may live elsewhere.

The N.W.T. has two land reserves and Yukon has six. The N.W.T. has 19 bands; the Yukon has 15. Some reinstated status Indians have not become members of a band.

The *Metis* people originated in the West, from the marriage of French Canadian men and Indian women during the fur trade. They moved into the North in the early 19th century and settled around Great Slave Lake. Another wave of Metis moved into the North in 1885 following the North West Rebellion. Metis peoples also trace their ancestry to unions between Hudson's Bay Company men — mainly of Scottish origin — and Indian (Dene*) women. Metis culture is strongly linked to the Dene. The 1986 census identified about 200 Metis in Yukon and about 3,000 in the N.W.T. These figures are based on a question that asked persons to identify their aboriginal status.

Non-status Indians lost their status through sexual discrimination or other actions taken under the *Indian Act*. Others may have lost their status by voluntary enfranchisement, by living in a foreign country for more than 5 years without the Minister's permission, or by having parents who lost their status for any of these reasons. Like Metis, non-status Indians are not governed by the *Indian Act*, but are recognized in sections 25 and 35 of the *Constitution Act, 1982*. Although non-status Indians, like Metis, receive federal and provincial services available to all citizens, in the past two decades several federal programs have been developed to address their special needs. The 1986 census identified about 700 non-status Indians in the N.W.T. and about 1,300 in Yukon. These figures are based on a question that asked persons to identify their aboriginal status.

Inuit, like the non-status and Metis, are not within the reserve system. Although they are not included in the *Indian Act*, a Supreme Court decision in 1939 determined that Inuit were "Indians" according to the *Constitution Act*, 1867. The territorial government provides most services for Inuit. The 1986 census identified 60 Inuit in Yukon and 18,135 in the N.W.T. These figures are based on a question that asked persons to identify their aboriginal status.

3.3.2 Distribution

Natives make up 58 per cent of the population of the N.W.T. Inuit are found north of the tree line in coastal communities in the eastern Arctic, along the west coast of Hudson Bay and westward across the mainland to Aklavik in the Mackenzie Delta. Baker Lake, located about 150 km from Hudson Bay, is the only Inuit inland community. Dene communities are located south of the tree line around the shore of Great Slave Lake, the Mackenzie River Valley and in part of the Mackenzie Delta.

The ethnic population in N.W.T. communities varies. In the eastern Arctic hamlet of Pangnirtung, for example, 94 per cent of the people are Inuit, and the rests are non-natives. In the Mackenzie Delta hamlet of Aklavik, 53 per cent of the people are Inuit, 28 per cent Dene, 12 per cent Metis and 7 per cent are non-native. The town of Inuvik is 60 per cent non-native, 25 per cent Inuit, 8 per cent Metis and 7 per cent Dene. Some Dene communities have large numbers of Metis. For example, in Fort Resolution, 43 per cent of the population is Dene, 46 per cent is Metis and the rest is non-native.

Non-native people predominate in communities with government administration, such as Inuvik, Yellowknife and Fort Smith; in transportation and service centres, such as Hay River and Enterprise; and in non-renewable resource production centres, such as Norman Wells. Table 3-6 shows the native and non-native population distribution in the N.W.T.

In Yukon about 22 per cent of the population is native. Most native people live on Crown land. About 150 live on reserves, and some live in the larger urban centres. The largest Indian groups live in Whitehorse, Dawson City and Old Crow. However, Indian residents live in almost every Yukon community. Pelly Crossing,

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* *"Dene" is a proto-Mackenzie Athapaskan word meaning person or people. It refers to Indian people in the N.W.T. who live south of the tree line. It does not include Inuit nor does it imply anything about the legal status of a native under the* Indian Act.

Old Crow and Burwash Landing are predominantly Indian, but the towns of Faro, Watson Lake and Beaver Creek are mostly non-native. Several Yukon communities have equal numbers of Indian and non-Indian residents (e.g., Teslin, Ross River and Carcross). Table 3-7 shows the native and non-native population distribution in Yukon.

3.4 Languages

Language was once the basis for ascribing ethnic affiliation. However, since the advent of schools (first church-operated and subsequently government-operated) loss of mother tongue has been a significant concomitant of formal schooling, particularly in the western Arctic, where schools have operated for the longest period of time.

Initially, the native people in the N.W.T. and Yukon spoke the languages from two different language families: Athapaskan and Inuit. The Indians of the western subarctic forests were affiliated with the Athapaskan linguistic family, and the Inuit of the arctic and subarctic tundra coastal regions with the Inuit linguistic family (see Figure 3-2).

The languages which are most likely to survive for some time to come include the principal dialects of the Inuit language (*Inuktitut*) spoken in the Baffin Region, Keewatin and central Arctic, as well as in Arctic Quebec and in Sanikiluaq. Among the Athapaskan speakers in the Mackenzie District and Yukon, *Kutchin (Loucheux)*, *Chipewyan*, *Slavey* and *Dogrib* are distinct languages. Insofar as the survival chances of these languages is concerned, Chipewyan and Slavey are considered to be moderately endangered while Dogrib is considered endangered. *Chipewyan* is spoken widely across northern Saskatchewan and northern Manitoba, and in the N.W.T. it is the predominant Indian language at Fort Resolution, Fort Smith and Snowdrift. *Slavey* is spoken in northern Alberta and in the N.W.T., principally in the communities of Fort Liard, Fort Norman, Fort Providence, Fort Simpson and Wrigley. *Dogrib* is spoken in the communities situated between the northern shore of Great Slave Lake and the southern shore of Great Bear Lake (e.g., in the Yellowknife area, Rae Lake and Snare Lake). *Hare*, believed to be a dialect of Slavey, is spoken principally in the communities of Fort Good Hope and Fort Franklin and Colville Lake. *Loucheux*, the official name in Canada for eastern Kutchin, is spoken in Aklavik, Arctic Red River and Fort McPherson.

The situation in Yukon is more critical with respect to the long-term survival of Indian languages, partly because the Indian people still speaking the languages are few in number, but more particularly because Indian people are a minority of the Yukon population. In Old Crow, the *Kutchin* language will likely survive since it is spoken in neighbouring regions of Alaska and the N.W.T., and because of the isolation, determination and social vitality of the Old Crow Kutchin. Other Yukon Indian languages struggling to survive include *Northern Tutchone*, spoken in Mayo, Pelly Crossing and Carmacks; *Southern Tutchone*, spoken in Burwash, Haines Junction and Whitehorse; *Han*, spoken in Dawson City; *Kaska*, spoken in Ross River and Watson Lake; and *Tlingit*, spoken in Teslin and Carcross. The *Tagish* language is almost extinct; only one speaker is still living in Tagish.

The Yukon Native Language Centre at Yukon College is operated by the Council for Yukon Indians with funds from the Government of Yukon. The centre is actively involved in teaching, documenting and promoting Yukon native languages. Staff give practical and technical support to language programs in Yukon schools, to adult evening courses in Whitehorse and the communities, and to classes at Yukon College. In 1983 a three-year Certificate Course for Native Language Instructors began at Yukon College, and is taught by staff of the Native Language Centre. It has attracted students from across the Yukon as well as from Athapaskan-speaking areas of British Columbia, the N.W.T. and Alaska.

In addition to native language classes, several schools offer native programs, which are supported by the Department of Education. These programs which include trapping, native dancing, crafts and native outdoor education, use publications by the Yukon Native Language Centre. Several Yukon communities use cross-cultural co-ordinators to help the school system and parents work together to give Indian children a better education.

The federal and N.W.T. territorial governments are making a determined effort to respond to native organizations' increased commitment to language retention. Kindergarten and junior grades are now taught in the students' mother tongue throughout the N.W.T., and curriculum and textual developments pay considerable attention to language and associated cultural sensibilities.

Active linguistic research is carried out with support from all governments in both northern territories with a view to preparing dictionaries, grammars and improved writing systems for all the main language groups. There are native language radio and television broadcasts, simultaneous translation (Inuktitut/English) during all N.W.T. Legislative Assembly sessions, and many native language articles in northern newspapers and periodicals. It is noteworthy also that federal enquiry reports (e.g., Environmental Assessment Reviews) dealing with the eastern Arctic appear simultaneously in English, French and Inuktitut, and that learned journals often carry article abstracts in the same three languages.

Inuktitut translators have formed a national association to further their professional needs and undertake preliminary work in terminology development aimed at creating and standardizing Inuktitut terms to cover newly introduced legal, medical, technical, scientific and financial concepts.

3.5 Economic Characteristics

The native residents of the North have now entered almost every occupational and economic stratum of Canadian society as it exists in northern Canada. There are native entrepreneurs who own and operate large private businesses and others who manage co-operatives, municipal budgets and carry out sophisticated management tasks in transportation, communications and regional organizations.

Because of the relative newness of the formal educational system in much of the Arctic, and because of a general reluctance to move south for long periods, there are few practitioners trained in professional fields requiring lengthy formal education. Those fields which have less rigid requirements for training programs (e.g., aviation, health or teaching auxiliaries and mechanical trades) have attracted many entrants.

One characteristic of the northern workforce is the diversity of occupations an individual may successively experience over a span of years. This characteristic is found in other economically marginal areas of Canada and the world, since it allows adaptation to the unpredictably changing economic conditions in frontier and marginal areas subject to either development or depression. It also reflects the preference of most members of the adult workforce, as they value personal freedom and operate in a society which values individual autonomy. In a wage employment situation these values can be well expressed by occasional job changes.

Another reason why native people generally favour seasonal, shift or part-time employment is because trapping, hunting and fishing activities continue to be important to them despite the increasing intrusion of the wage economy. One of the ironies of this native preference for traditional activities is that large amounts of cash are required to obtain modern production technology. However, with the decline of cash income from trapping and sealing, harvesting can no longer generate the money needed to buy goods of production such as guns, ammunition, snowmobiles and traps. Consequently, native people have increasingly had to turn to wage employment in order to acquire the goods and services imported from the south.

When wage employment is scarce, the traditional sharing networks that still exist in many of the smaller native communities enable individual households to continue being self-sufficient. Indeed, the sharing of resources such as food, equipment and cash has, in recent years, reduced the need for social assistance payments in many native communities.

The largest employer in the North is government, especially territorial and municipal government. The vast majority of local government positions in the smaller native communities are filled by local native residents. In October 1988 the N.W.T. government employed about 4,500 people of which almost 31 per cent were native. In January 1989 the Yukon government employed about 2,700 people. About nine per cent were native.

3.6 The Arts

The growth in production and appreciation of art in its various forms is one manifestation of the reawakening of cultural and ethnic pride which native people in the North have experienced in recent years. The skilful development of the Inuit soapstone carving market in the 1950s and the graphic print market in the 1960s has resulted in the growth of an art industry in the North. This has brought significant economic benefits to a large number of people and international recognition to Inuit artists.

In addition to the widespread production of stone, bone and ivory carvings throughout the North, several Inuit communities are now acknowledged centres for fine art printmaking. The earliest centre to be established was in Cape Dorset (1959), followed by Holman (1965), Baker Lake (1970) and Pangnirtung (1973). Most recently, Clyde River has begun printmaking, especially on textiles. Other media in which Inuit artists work include appliqué wallhangings (Baker Lake), weaving (Pangnirtung), fashion design and sewing/embroidery (Spence Bay) and handcrafted jewellery (Iqaluit).

The art forms of the Athapaskans are equally appealing, whether moosehair tufting, porcupine quill embroidery or beadwork, often in colourful geometric or floral designs. A few continue to use natural vegetal/plant dyes in their artwork. Many of their designs are incorporated into footwear and clothing, especially ceremonial attire. Recently, Indian and Metis artists began using acrylic paints, oil paints, and pen and ink.

Both Inuit and Indians dance and have a musical tradition based on the drum. In general, the Inuit drum dance is a solitary event, the dancers providing their own accompaniment on a hand-held drum. However, the Inuvialuit of the Mackenzie Delta region perform a group dance with musical accompaniment provided by drummers who remain seated. Indian drumming is also done to accompany dancers. In both cases singing or chanting is part of the dance. In various Arctic regions, Inuit women still perform traditional throat-singing.

Modern musical instruments are now used in the North, and accordion and fiddle music often set the pace at community dances. Younger musical artists often sing humorous or satirical ballads or laments, accompanying themselves on electric guitars. Several "groups" have developed, playing rock or modified country and western. Festivals such as "Folk on the Rocks" in Yellowknife are now annual events. (See Table 13-3).

Many of the northern artists appearing at these festivals also perform at concerts elsewhere in Canada and through their records have gained appreciative followings overseas as well as throughout the North. Popular songwriter-performers include Etulu Etidlooie, Charlie Panigoniak, Mark Papigatuk, William Tagoona and William Thrasher.

Northern filmmaking is a developing art form, especially since the establishment of the Native Communications Society in the western N.W.T. and the Inuit Broadcasting Corporation (IBC) which, in cooperation with Taqramiut Nipingat Inc. of Salluit, Northern Quebec, produces television broadcast programming for more than 40 communities in Labrador, northern Quebec and the Northwest Territories. In addition to native-run TV production facilities in Baker Lake and Iqaluit, IBC also has film units operating out of Cambridge Bay, Igloolik and Rankin Inlet. The Inuvialuit Communications Society (ICS) has television production facilities in Inuvik and a graphic design unit, Tumitchiat Graphic Design.

Native artistic performances receive the most publicity, but more non-native dance, music and theatre is coming to the North. The Northern Arts and Cultural Centre, constructed in Yellowknife in 1984, provides a

fine new stage for both non-native touring companies and local groups. Directors of the 315-seat theatre raised $1.3 million to renovate an old high school gymnasium for their new theatre.

The natural and cultural history of the N.W.T. is showcased in Yellowknife at the Prince of Wales Northern Heritage Centre, which celebrated its 10th anniversary in April 1989. The Heritage Centre's northern collections include about 80,000 archival photographs, 4,200 works of fine art, 4,000 ethnology artifacts, 10,600 history artifacts, 23,000 archaeology artifacts, 1,500 geology specimens and 400 faunal specimens. The centre's galleries trace 7,000 years of habitation in the North, through the lives of Dene, Inuit, Metis and newcomers.

There has been considerable growth in publishing the works of native northerners since the appearance of the autobiographies of the Mackenzie Delta resident Nuligak and Keewatin resident John Ayaruaq in the 1960s. Since then, Inuit authors whose books have been published include Norman Ekoomiak, Minnie Aodla Freeman, Alice Masak French, Peter Pitseolak, Markoosie, Nick Sikkuark, Armand Tagoona, Ruth Annaqtuusi and Anthony Apakark Thrasher. This increase in publishing has also resulted in increased opportunities for people such as Germaine Arnaktauyok, Allootook Ipeelie, Agnes Nanogak and Sorosilutu Ashoona, who have had their artwork used for book illustrations.

Yukon's cultural community includes visual, performing and literary artists participating in all forms of artistic expression. Yukon presents a special combination of traditional native and non-native art, contemporary progressive images in the visual arts, native song and dance, contemporary dance, drama, native storytelling and contemporary literary arts.

The Yukon government promotes the arts by funding art programs and providing grants for artists' groups. The Territorial Art Gallery holds 12 exhibits annually and gives technical workshops for the visual arts. The Sport, Arts and Recreation Branch of the Department of Community and Transportation Services involves Yukon artists in local and national festivals. In 1986, Whitehorse was involved in a cultural exchange with its sister city, Ushiku, Japan. Although the government provides funding, most cultural initiatives are started by artists and various groups co-ordinate their own programs.

Yukon is home to many talented artists, such as Jim Robb, internationally recognized cartoonist and graphics artist; Ted Harrison, national and international visual artist and author-illustrator; Daniel Janke, John Steins and Manfred Jansen, recording artists; Marguerite Ruurs, author; Dr. Julie Cruikshank, anthropologist, author, editor and oral historian; Kitty Smith and Angela Sidney, native storytellers; Gertie Tom, native linguist, teacher and author; Flo Whyard, author; Dick North, author; and Lillian Loponen Stephenson, national and international visual artist. Many classical, folk and rock musicians also live in Yukon.

Yukon has four major arts organizations. The umbrella organization is the Yukon Arts Council, which receives core funding from the Sport, Arts and Recreation Branch program and charges member organizations for services and administration. The major visual arts group is Friends of the Gallery which represents all media and is responsible for the Yukon Permanent Art Collection acquisitions, fundraisers, exhibitions and storage. Friends of the Gallery receives an annual contribution of $5,000 from Tourism Yukon for preserving this collection. There are five performing groups in Whitehorse: The Guild; the Golden Horn Music Society; Separate Realities; Whitehorse Drama Club, and the Nakai Players.

The Society of Yukon Artists of Native Ancestry (SYANA) represents native groups in all art forms. Although it is quite new, it has taken the lead in developing native arts. Traditional native expression ranges from dance groups in Old Crow, Whitehorse and Teslin, to acclaimed sculptors Keith Smarch and Allen and Fred Edzera. The Gaslight and Frantic Follies, Yukon's professional troupes, operate in both Whitehorse and Dawson City.

Yukon is involved in all aspects of the arts and each form is well represented by the works and performances of Yukon's talented artists. Plans are under way to construct a multi-million-dollar, multi-purpose performing arts centre and art gallery in Whitehorse, on the Yukon College campus.

3.7 Social Change

The most noticeable change in the North over the past 30 years has been the growth and development of permanent communities. The move from the small, family-centred camps on the land into permanent settlements situated at trading posts and churches started gradually, accelerated after World War II and was almost completed by the mid-1960s. The reason often given for the move into settlements was to enable children to attend the schools opening at permanent settlement sites and to bring the people to the places where government (including health, welfare and particularly housing) services were administered. These changes were taking place at a time when the fur trade was in decline and tuberculosis was the scourge of the North. It was, therefore, a period of insecurity and of great uncertainty. At times, ten per cent of the population was away at distant sanitoria for extended periods. Results of these changes were a loss of confidence and knowledge of the historic ways of making a living and coping.

The new settlements were administered by government personnel, and native leaders were no longer seen as leaders in the new communities. The first settlement councils were purely advisory and had little effective say in the direction or administration of the new communities.

By the 1970s, however, community councils began to undertake certain administration duties, such as administering local housing. Co-ops, a growing movement since their inception in 1960, provided important management experience. Thus, the people began to assume a greater degree of control over programs affecting the quality of life in their own communities. Responsibility for game regulations, economic development projects, community services and municipal planning carried over to a greater degree of involvement with the affairs of the territorial governments which

have increasingly administered former federal programs over a larger area of responsibilities.

These changes have not been without adjustment problems for the people affected. Schools, while imparting new skills, may also impart different value orientations from those of the home environment, and many of the modern influences appear to the young to devalue earlier ways of doing things. The period of rapid social change, in the 1960s especially, was therefore a traumatic time for many individuals and families. Consequently, for the first time in the North, particularly in the larger communities, policemen were regularly involved in work familiar to their colleagues in urban centres in southern Canada. Much of the "crime" was committed by young offenders, often abuse of property and alcohol-related crimes, but also acts of desperation, such as suicide or assault.

More recently, native people have been gaining more control over areas that affect their lives through more involvement in education, health, land use (particularly by industry), game and fishery management. The process of providing for this involvement in a meaningful and well coordinated manner is one of the major tasks facing government. Partly because there is now a native majority on the N.W.T. Executive Council, federal and territorial governments better understand the importance of consultation on matters affecting native people in the North.

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Table 3-1

Population — N.W.T. Communities

Community	Statistics Canada 1986	Government of the N.W.T. 1988	Community	Statistics Canada 1986	Government of the N.W.T. 1988
Aklavik	763	777	Iqaluit	2,947	3,039
Arctic Bay	477	535	Jean Marie River	64	66
Arctic Red River	108	106	Kakisa	30	29
Arviat	1,169	1,256	Lac la Martre	345	413
Baker Lake	1,009	1,049	Lake Harbour	326	341
Bathurst Inlet	16	16	Nahanni Butte	84	87
Bay Chimo	61	64	Nanisivik	315	317
Broughton Island	439	451	Norman Wells	627	536
Cambridge Bay	1,002	1,027	Pangnirtung	1,004	1,070
Cape Dorset	872	970	Paradise Gardens	42	42
Chesterfield Inlet	294	284	Paulatuk	193	213
Clyde River	471	474	Pelly Bay	297	327
Colville Lake	52	52	Pine Point	1,558	177
Coppermine	888	956	Pond Inlet	796	885
Coral Harbour	477	522	Rae Lakes	183	188
Detah	131	131	Rae-Edzo	1,378	1,443
Enterprise	56	56	Rankin Inlet	1,374	1,424
Fort Franklin	532	550	Reliance	11	11
Fort Good Hope	562	586	Repulse Bay	420	454
Fort Liard	395	398	Resolute	184	166
Fort McPherson	760	729	Sachs Harbour	158	171
Fort Norman	332	360	Salt Plains Reserve	14	14
Fort Providence	588	577	Sanikiluaq	422	457
Fort Resolution	447	475	Snare Lake	119	123
Fort Simpson	987	1,006	Snowdrift	273	263
Fort Smith	2,460	2,505	Spence Bay	488	540
Gjoa Haven	650	706	Trout Lake	54	57
Grise Fiord	114	76	Tuktoyaktuk	929	956
Hall Beach	451	476	Whale Cove	210	246
Hay River	2,964	2,827	Wrigley	161	161
Hay River Reserve	180	181	Yellowknife	11,753	13,011
Holman	303	316	Unorganized Area	1,223	962
Igloolik	857	922			
Inuvik	3,389	2,670	Total	52,238	52,298

Source: Statistics Canada. Census Canada 1986. *Northwest Territories: Part 2 Profiles*. Catalogue No. 94-124.

Statistics Quarterly. Vol. 11, No. 1, (March 1989) Bureau of Statistics, Government of Northwest Territories.

Table 3-2

Population — Yukon Communities

Community	Statistics Canada 1986	Government of Yukon 1986	Government of Yukon 1988
Beaver Creek	113	93	88
Burwash Landing	64	86	107
Carcross	209	307	357
Carmacks	280	399	286
Carmacks Landing	124	*	*
Champagne Landing No. 10	11	*	*
Dawson City	896	1,507	1,620
Destruction Bay	48	77	50
Elsa	2[illegible]	374	385
Faro	400	574	1,297
Haines Junction	340	527	578
Johnson's Crossing	18	*	*
Keno	47	*	*
Kloo Lake	4	*	*
Lake Laberge Reserve	13	*	*
Marsh Lake	24	*	*
Mayo	317	490	505
Old Crow	232	266	270
Pelly Crossing	177	209	241
Ross River	352	384	387
Stewart Crossing	40	*	*
Swift River	5	*	*
Tagish	103	127	108
Teslin	181	404	455
Teslin Post Reserve	179	*	*
Two and One-Half Mile Village	21	*	*
Two Mile Village	85	*	*
Upper Liard	130	*	*
Watson Lake	826	1,551	1,656
Whitehorse	15,199	18,003	19,836
Unorganized Area	2,772	107	1,267
Total	23,504	25,485	29,493

Source: Statistics Canada. Census Canada 1986. *Yukon: Part 2 Profiles.* Catalogue No. 94-122.

Statistical Review. Second Quarter, 1986, Yukon Executive Council Office, Bureau of Statistics.

Statistical Review. Second Quarter, 1988, Yukon Executive Council Office, Bureau of Statistics.

Notes: Statistics Canada and the Government of Yukon statistics are not entirely comparable. There may be underenumeration in the Statistics Canada census.

Statistics Canada's census enumerates individuals who consider themselves as residents in a legal sense in a Yukon community. The Government of Yukon, using health care data, enumerates individuals who have used a community long enough to register for health care services or to be employed.

* Government of Yukon statistics for 1986 and 1988 include Carmacks Landing in the Carmacks figure. Lake Laberge and Marsh Lake are included in Whitehorse. Teslin Post is included in Teslin. Two and One-Half Mile Village, Two Mile Village and Upper Liard are included in Watson Lake. Champagne Landing No. 10, Johnson's Crossing, Kloo Lake, Stewart Crossing and Swift River are included in the unorganized area figure.

Table 3-3

Deaths from All Forms of Tuberculosis

Year	Canada		N.W.T.		Yukon	
	Number	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000
1945	5,694	47.2	127	1,058.3	21	420.0
1950	3,679	26.8	81	506.3	15	187.5
1955	1,403	8.9	18	100.0	3	27.3
1960	823	4.6	9	40.9	1	7.1
1965	697	3.6	10	40.0	—	—
1970	527	2.5	3	9.1	—	—
1975	278	1.2	1	2.6	—	—
1980	188	0.8	4	9.3	—	—
1985	206	0.8	1	2.0	—	—
1986	182	0.7	3	5.7	—	—
1987	155	0.6	—	—	1	4.1

Source: Statistics Canada. *Tuberculosis Statistics: Morbidity and Mortality 1987.* (Table 17).

Table 3-4

New Active and Reactivated Cases of Tuberculosis

Year	Canada		N.W.T.		Yukon	
	Number	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000
1975	3,551	15.6	54	142.9	11	52.9
1976	3,143	13.7	51	119.7	10	45.8
1977	3,194	13.7	57	131.6	8	37.2
1978	2,940	12.5	45	103.2	6	27.6
1979	2,760	11.7	43	99.1	12	55.6
1980	2,761	11.5	28	65.0	2	9.3
1981	2,529	10.4	27	59.0	8	34.6
1982	2,472	10.0	34	72.1	3	12.6
1983	2,356	9.5	32	66.1	6	26.9
1984	2,356	9.4	20	40.5	5	22.9
1985	2,144	8.5	9	17.7	1	4.4
1986	2,145	8.4	23	44.7	4	17.9
1987	1,972	7.7	20	38.7	1	4.1
1988	1,947	7.5	36	69.5	4	15.8

Source: Statistics Canada. *Tuberculosis Statistics: Morbidity and Mortality 1988.* (Table 1).

Table 3-5

Sexually Transmitted Diseases, Gonorrhea and Syphilis

		Canada		N.W.T.		Yukon	
	Year	Number	Rate per 100,000	Number	Rate per 100,000	Number	Rate per 100,000
Gonorrhea	1955	14,300	91.2	n.a.	n.a.	70	636.4
	1960	15,661	87.6	74	600.0	119	1,385.7
	1965	20,453	104.1	661	2,448.1	167	1,192.9
	1970	31,544	146.6	937	2,839.4	229	1,431.2
	1975	50,752	222.6	2,268	6,000.0	447	2,149.0
	1980	53,285	222.8	1,406	3,269.8	343	1,602.8
	1985	40,741	160.6	1,207	2,371.3	191	837.7
	1986	35,290	137.9	1,436	2,821.2	186	812.2
	1987	27,922	108.9	1,144	2,212.8	125	512.3
Syphilis	1955	2,401	15.3	n.a.	n.a.	6	54.5
	1960	2,168	12.1	13	59.1	8	57.1
	1965	2,560	13.0	3	11.1	10	71.4
	1970	2,501	11.7	6	18.2	6	37.5
	1975	3,964	17.4	—	—	2	9.6
	1980	2,987	12.5	—	—	1	4.8
	1985	2,607	10.3	1	2.0	—	—
	1986	2,199	8.6	4	7.9	1	4.4
	1987	2,376	9.3	1	2.0	—	—

Source: Bureau of Communicable Disease Epidemiology, *Sexually Transmitted Disease in Canada 1987*, p.18-21.

Table 3-6

Native and Non-Native Population — N.W.T.

Community	Total	Native	Non-Native	Community	Total	Native	Non-Native
Aklavik	755	690	65	Hay River	2,890	885	2,005
Arctic Bay	475	455	20	Hay River Reserve	180	180	0
Arctic Red River	110	105	5	Holman	305	290	15
Arviat	1,190	1,125	65	Igloolik	855	820	35
Baker Lake	1,010	900	110	Inuvik	3,380	1,355	2,025
Bay Chimo	60	60	0	Iqaluit	2,950	1,825	1,120
Broughton Island	435	410	25	Jean Marie River	65	65	0
Cambridge Bay	995	755	245	Lac la Martre	345	330	15
Cape Dorset	870	820	50	Lake Harbour	325	310	15
Chesterfield Inlet	285	265	20	Nahanni Butte	85	80	0
Clyde River	470	450	20	Nanisivik	315	130	185
Colville Lake	55	55	0	Norman Wells	630	115	515
Coppermine	885	825	65	Pangnirtung	1,005	945	60
Coral Harbour	475	455	25	Paradise Gardens	40	15	30
Detah	130	130	0	Paulatuk	190	180	10
Enterprise	55	15	40	Pelly Bay	295	280	15
Fort Franklin	530	500	30	Pine Point	1,550	350	1,200
Fort Good Hope	555	510	45	Pond Inlet	795	750	50
Fort Liard	395	330	60	Rae Lakes	185	180	0
Fort McPherson	760	715	40	Rae-Edzo	1,375	1,255	120
Fort Norman	330	305	25	Rankin Inlet	1,375	1,080	295
Fort Providence	570	515	50	Repulse Bay	420	405	15
Fort Resolution	445	390	55	Resolute	185	130	55
Fort Simpson	985	580	400	Sachs Harbour	155	145	10
Fort Smith	2,480	1,155	1,325	Sanikiluaq	420	395	25
Gjoa Haven	650	625	25	Snare Lake	120	115	0
Grise Fiord	115	105	10	Snowdrift	270	255	15
Hall Beach	450	425	25	Spence Bay	490	455	35

Table 3-6 *(continued)*

Native and Non-Native Population — N.W.T.

Community	Total	Native	Non-Native	Community	Total	Native	Non-Native
Trout Lake	55	55	0	Yellowknife	11,685	1,775	9,915
Tuktoyaktuk	925	845	80	Unorganized Area	945	440	505
Whale Cove	205	195	10				
Wrigley	165	150	10	Total	52,020	30,525	21,490

Source: Statistics Canada. Census Canada 1986. *"Total Population by Age Groups, Sex and Ethnicity — N.W.T. and Yukon."* Special run for INAC, February and April, 1989.

Note: Persons with both native and non-native origins were classified as natives.

All numbers have been rounded to a multiple of 5 for confidentiality. Since these subtotals are independently rounded, figures for natives and non-natives may not add to the total population figure for a community.

Table 3-7

Native and Non-Native Population — Yukon

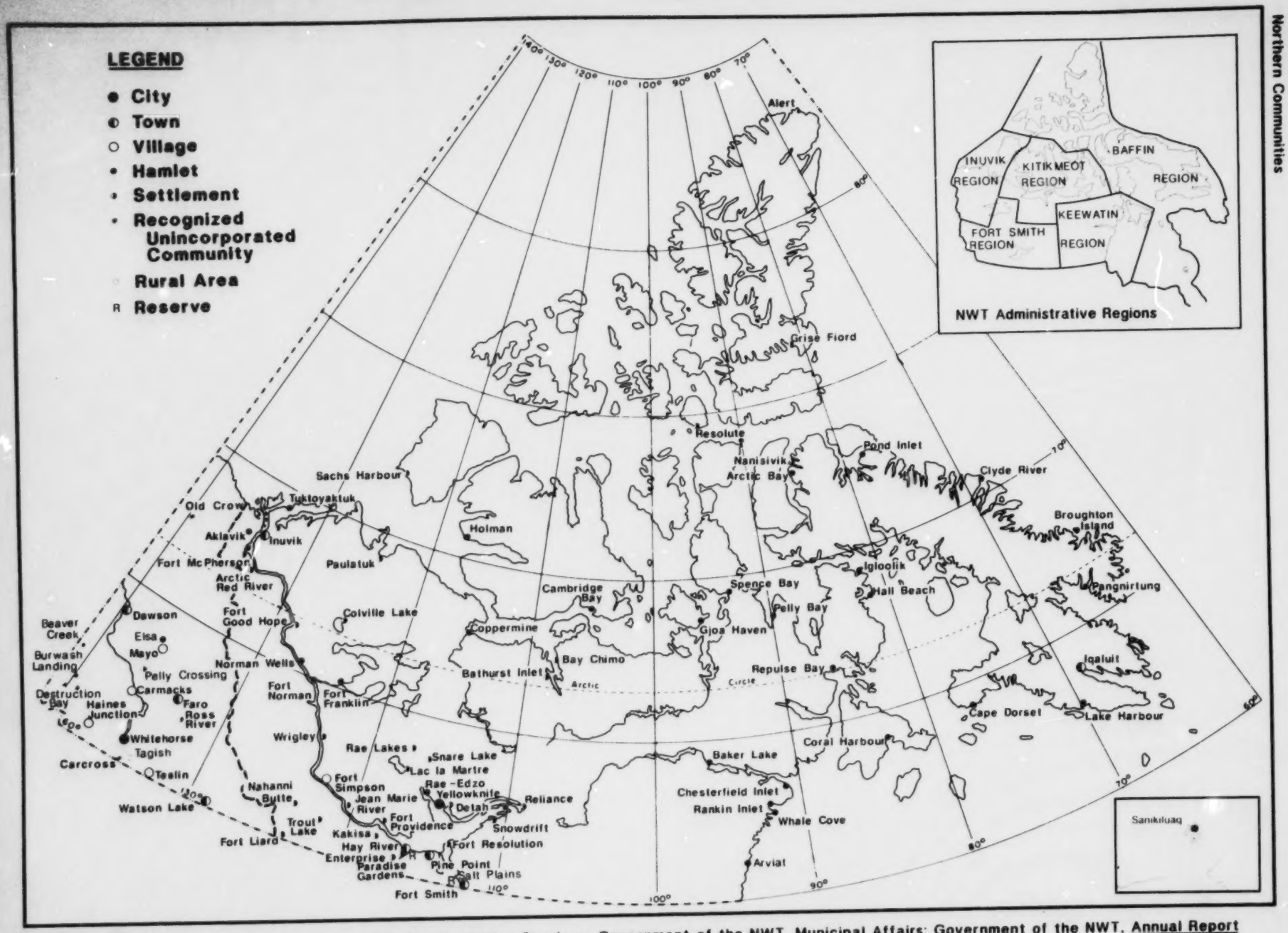
Community	Total	Native	Non-Native	Community	Total	Native	Non-Native
Beaver Creek	115	30	80	Pelly Crossing	180	160	15
Burwash Landing	65	50	15	Ross River	350	260	95
Carcross	210	130	75	Stewart Crossing	40	15	25
Carmacks	280	150	135	Tagish	105	35	75
Carmacks Landing	125	125	0	Teslin	185	65	115
Dawson City	890	260	630	Teslin Post Reserve	180	160	20
Destruction Bay	50	5	40	Two Mile Village	85	85	0
Elsa	295	20	270	Upper Liard	120	90	30
Faro	400	40	360	Watson Lake	820	165	655
Haines Junction	340	75	270	Whitehorse	15,075	2,135	12,945
Keno	45	5	40	Unorganized Area	2,770	530	2,240
Mayo	315	140	175				
Old Crow	235	205	25	Total	23,360	4,995	18,365

Source: Statistics Canada. Census Canada 1986 *Total Population by Age Groups, Sex and Ethnicity — N.W.T. and Yukon*. Special run for INAC, February and April, 1989.

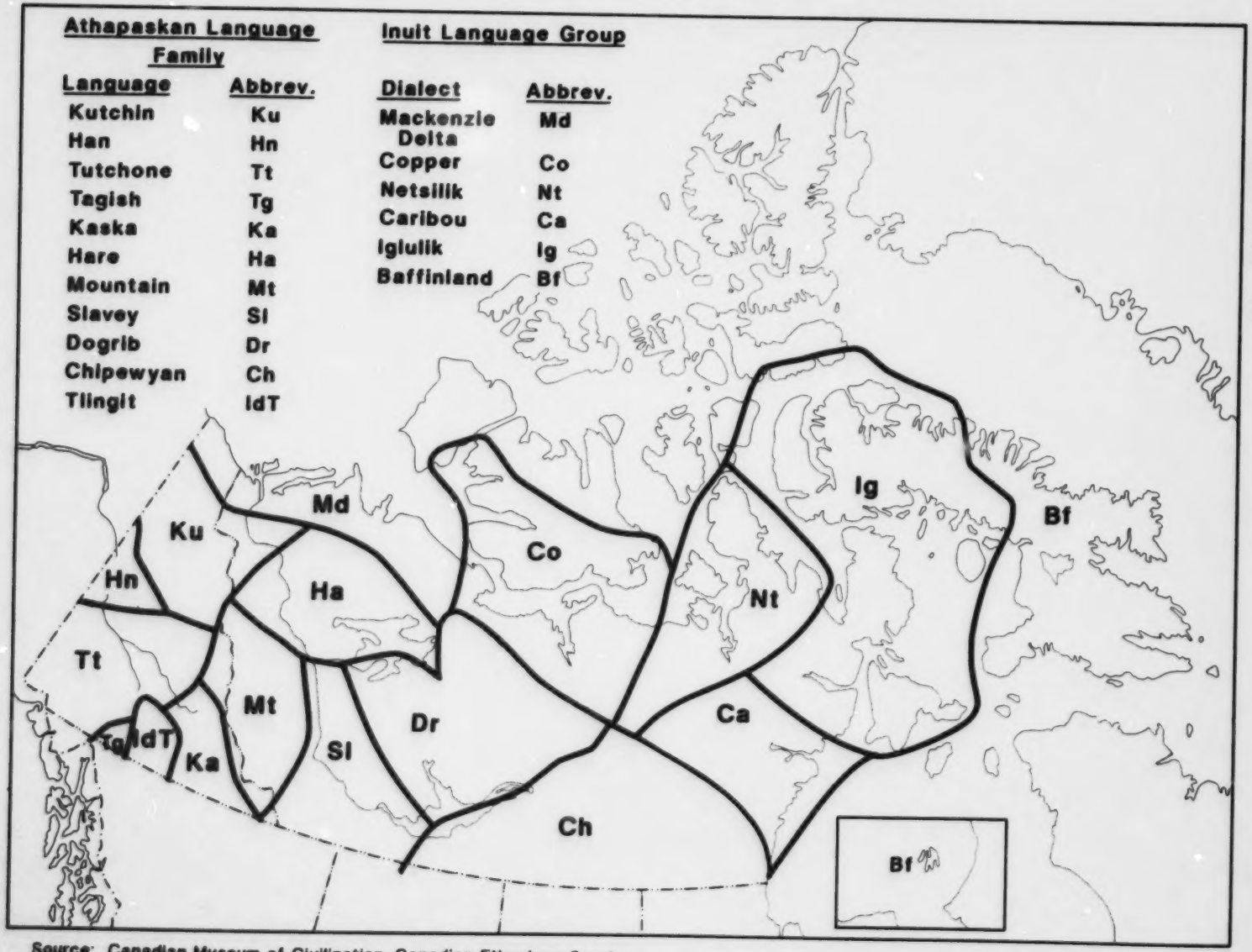
Note: Persons with both native and non-native origins were classified as natives.

All numbers have been rounded to a multiple of 5 for confidentiality. Since these subtotals are independently rounded, figures for natives and non-natives may not add to the total population figure for a community.

Figure 3-1
Northern Communities



Source: Government of Yukon, Community and Transportation Services; Government of the NWT, Municipal Affairs; Government of the NWT, Annual Report



Source: Canadian Museum of Civilization, Canadian Ethnology Service

Figure 3-2
Northern Aboriginal People - 1989

4.0 History

4.1 Prehistory

The oldest evidence of occupation in the North is found in the Bluefish Caves in the Porcupine basin of northern Yukon. The paleoenvironmental and cultural markings indicate that the uplands, located south of the glacial lakes Old Crow and Bluefish, were exploited by human groups as early as 18,000 years ago. Other evidence of occupation of the North before 11,500 years ago is sparse. Nevertheless, between 18,000 and 12,000 years ago (or even earlier), immigrants originally from Asia traversed northwestern Canada and moved south between the eastern and western glaciers. They eventually settled the rest of the continent.

By 11,000 years ago the people who lived in the Yukon and Alaska were characterized by two traditions of producing stone tools. These might represent two ethnic or linguistic groups. The technologically specialized *Palaeo-Arctic Tradition* is traced to Siberia. The other tradition lacks a widely accepted name. It produced flaked tools and weapon points by more generalized flaking methods. This tradition probably had deeper roots in the western Subarctic and western North America.

These traditions merged, developed local forms and received new cultural elements. Migrants from southern Asia and eastern Canada probably also joined these traditions. From this complex fabric of prehistory, ancestral Athapaskan Indian culture developed in the southeast Alaska-Yukon area and spread to the Northwest Territories and the south.

East of the Mackenzie, Indian groups penetrated the Arctic from the south about 8,000 years ago. Moving to the edge of the tree line, which was then farther north, these people developed an economy and culture based on hunting caribou and bison. This culture is the *Northern Plano Tradition*. It later developed into the *Shield Archaic Tradition*. The Shield Archaic Tradition was associated with some groups that occupied the areas of the eastern Subarctic, which had become inhabitable after deglaciation. They may be the ancestors of the northern Algonkian Indians.

The tundra area north of the tree line, including the Arctic coast and archipelago, remained uninhabited until about 4,500 years ago. The first occupants were *Palaeoeskimos*, who probably crossed the Bering Strait from Siberia. Their Asiatic tools, including the bow and arrow, allowed them to adapt to year-round life on the tundra and along the coast and to rapidly occupy all of Arctic North America. They were proficient hunters of caribou and musk-ox, seals, walrus and small whales and also captured seals and occasionally larger sea mammals. By 500 BC these people had developed the *Dorset Culture*, which flourished for the next 1,500 years. Their numbers increased: the remains of Dorset camps are large and indicate more settled habitation. The economies of most Dorset groups were adapted to coastal resources. They were efficient hunters of walrus, small whales and seals. The Dorset people also developed a remarkable art in carving miniature animals, humans and other objects from ivory or driftwood.

About 1000 AD a wave of immigrants from Alaska displaced the Dorset people. These immigrants were the ancestors of the Inuit, a branch of the Eskimo family. The *Thule Culture* people brought sophisticated maritime hunting tools and techniques. They captured sea mammals as large as the bowhead whale, which was probably the mainstay of their economy. Their stocks of whale meat and other food allowed them to spend winters in permanent houses built from stone and whale bones. This culture utilized extensively the large dogsleds, kayak and the larger umiak, and introduced many elements of traditional Inuit life. In Greenland, and perhaps occasionally in the eastern Canadian Arctic, the Thule people met the Norse settlers that had arrived in Greenland at about the same time as the Inuit.

In most Arctic areas east of the Mackenzie River, the Thule way of life was curtailed by the cooling climate and increased sea ice. These changes culminated in the Little Ice Age from 1600 and 1850 AD. The traditional Inuit ways of life developed as the Thule people adapted to these cooling conditions. They also changed as they gradually increased contact with Europeans and their way of life.

4.2 Exploration

Credit for the exploration of the northern territories properly belongs to those native people who first inhabited the North. They not only discovered the country but also learned how to live on the resources they found there. The European exploration began much later with the search for a north-west passage to the Orient. Martin Frobisher led the way in 1576 when he reached Baffin Island and, though he himself was diverted by the belief that he had found gold ore there, the search for a north-west passage was taken up by John Davis, Henry Hudson, Thomas Button, Robert Bylot, William Baffin, Luke Foxe and other adventurers who in the next half-century determined the main features of Hudson Bay and the shores of Baffin Bay and Davis Strait.

The Hudson's Bay Company was established in 1670, and for the next hundred years exploration and commerce was directed toward the rich fur country south of the 60th parallel. Voyages along the west coast of Hudson Bay as far as Repulse Bay were also undertaken. The only parts of the N.W.T. to be affected by exploration, trade or the conflict between the English and French were the islands in James Bay and Hudson Bay. A good example is Charlton Island in James Bay which was used by the fur trade as a depot for supplies brought in by sea from Europe. In 1769, however, Samuel Hearne set out from Churchill on his first attempt to reach the Coppermine River. On his third attempt, he succeeded in reaching Bloody Falls and the nearby Arctic Ocean. The next important journey was carried out by the rival North West Company in 1789, when Alexander Mackenzie travelled by canoe down the river which now bears his name to reach the Arctic Ocean — not, as he had hoped, the Pacific. This journey opened up the Mackenzie region and southern Yukon to fur traders from the south.

After the conclusion of the Napoleonic Wars, the search for a north-west passage was resumed by the Royal Navy. In 1818, the explorer John Ross entered Lancaster Sound but reported that it was closed by mountains. Next year, W.E. Parry, who had been second in command to Ross, reentered Lancaster Sound and sailed as far west as Winter Harbour on Melville Island. Ice prevented him from completing the passage, but he wintered safely and then, as the ice to the west remained impenetrable the next summer, returned to England. On his next expedition in 1821, Parry entered Hudson Bay and Foxe Basin, wintered at Winter Island off Melville Peninsula and continued north, but he was unable to get through Fury and Hecla Strait, forcing him to winter at Igloolik. Next summer, ice conditions remained bad and he returned to England. On his third north-west passage attempt, he wintered on north Baffin Island but had to abandon his mission the next summer when one of his ships was driven ashore at Fury Beach on the east coast of Somerset Island.

Meanwhile, John Franklin was sent twice by the British Admiralty to travel overland to the shores of the Arctic Ocean. On his first journey, he covered the coast from the Coppermine River east to Point Turnagain on Kent Peninsula. On his second voyage, he travelled west from the Mackenzie Delta to Return Reef, west of Prudhoe Bay in Alaska.

Interest in the Arctic remained high for the next decade, when the most notable achievements were John Ross's expedition which entered the Gulf of Boothia, when the North Magnetic Pole was located; George Back's journey down the Back River to the sea; and the exploration of most of the rest of the Arctic coast by Peter Dease and Thomas Simpson. Farther west, Robert Campbell of the Hudson's Bay Company ascended the Liard River in 1840 and crossed the watershed to discover the Pelly River. During the next 12 years, he was responsible for the original exploration of much of Yukon Territory.

In 1845, a major naval north-west passage expedition sailed under Franklin and entered Lancaster Sound. With more than a hundred men it failed to reach the Pacific and did not return. The search for a north-west passage became secondary to the search for the missing ships. Numerous expeditions took part in this quest. By 1857, Francis Leopold McClintock discovered records on King William Island showing that Franklin's ships had been abandoned there. By that time, the north-west passage had been found but proved to have no value as a route for contemporary naval or merchant ships. Many of the islands of the Canadian Arctic Archipelago had been explored, and John Rae had completed the exploration of the Arctic coast of the mainland.

The next major Arctic expedition was George Nares' North Polar Expedition which explored the north coast of Ellesmere Island in 1875-76. From 1898-1902 Otto Sverdrup, a Norwegian, made much more extensive discoveries, including Axel Heiberg Island and the Ringnes Islands, and explored the west coast of Ellesmere Island. The first man to take a ship through the north-west passage was Roald Amundsen, another Norwegian, from 1903-06. During the Canadian Arctic Expedition (1913-18), Vilhjalmur Stefansson discovered Brock, Borden and Meighen islands to complete the outline of the Queen Elizabeth Islands. The few remaining gaps in the map were completed by smaller expeditions before World War II and by post-war Royal Canadian Air Force air photography.

4.3 Development up to World War II

4.3.1 Yukon

Native groups in Yukon made their first contact with non-natives in Alaska. Russians and Americans had penetrated both Alaska and Yukon from the south coast of Alaska by the early 1700s. By 1784, the Russians had established a permanent post in southeast Alaska and were trading extensively with the native population. In Yukon, native middlemen dominated trade both within Yukon and into Alaska until the 1850s.

To the east, intensive trade with fur-traders in the southern Mackenzie region did not begin until the late 1700s. Trade with northern Yukon Indian groups did not become regular until the 1820s and continued to be dominated by native middlemen. It was not until 1840, when a post was established at the site of present day Fort McPherson, that the fur trade really took hold in the western Arctic.

As the fur trade increased in importance in the Mackenzie and Yukon regions, the activities of the indigenous people became increasingly channelled. By strategically locating posts at highly accessible points, hunting families began to stay in the area of a particular post, especially when they had developed a cycle of debt and credit relationship. Native people became more reliant on trading posts for food, ammunition and clothing as they began to spend more time trapping and less time hunting.

The effects of the fur trade were similar across the North. Native groups became more sedentary and reliant on foreign goods, and the introduction of diseases from the south greatly reduced the native population.

The fur trade dominated the Yukon economic scene for most of the 1800s. However, by the end of the century, the attention of the world was drawn to Yukon for a very different reason. Prospectors from northern British Columbia had been moving farther north in their search for gold, and in 1898, exceptionally rich placer gold was discovered in Bonanza Creek which runs into the Klondike River, a tributary of the Yukon River. The resulting gold rush brought tens of thousands of people into the North, especially from the United States and southern Canada. By the end of the century, Dawson City (with a population of 25,000) had become the largest city in Canada west of Winnipeg.

The richest placers were worked out in a few years, and the gold rush quickly faded. But, it left two important legacies. One was the White Pass and Yukon Railway, which ran from tidewater at Skagway to Whitehorse on the Yukon River, providing much easier and more direct access to the Yukon from the south than the former route by ship to the Bering Sea and then by paddle steamer up the Yukon River. (It now operates as a tourist train between Skagway, Alaska and Fraser, BC

from the end of May to mid-September.) The other was the Yukon Territorial Government, with a fully elected council responsible for legislation and a commissioner, appointed by the federal government. Yukon had also become a federal constituency. However, government involvement in development and in economic and social processes remained insubstantial for many years. Activities operated as they had previously, with a little more direction from southern Canada and with the added feature that the North West Mounted Police frequently contributed to the welfare of native people. Gold mining survived, owing to rationalization of claims allowing the use of hydraulic plants and dredges on low-grade and reworked properties. Production, however, was much lower. Additionally, there were sporadic attempts to mine copper, silver and lead. By the outbreak of World War II, however, the total population of the territory had fallen below 5,000.

The gold rush had mixed effects on native people. The Tagish, who also mined gold, and the Han suffered the most; but the Tutchone and other Indians living along the route to the gold fields became involved in packing, guiding and providing food and services for prospectors. Some men became deckhands on the river boats and a few Indian women married white prospectors.

After the gold rush subsided and the population declined, natives continued to live, travel and trap in family groups. For part of the year they occupied log cabins built near trading posts. Some kept working on river boats, cutting wood and offering guide services for big game outfitters. Others had seasonal work on the White Pass Railroad. Although children began attending residential schools, traditional lifestyles remained largely intact.

Besides the gold rush, the appearance of whaling ships in the late 1880s along the north coast of Yukon attracted many native people. Meat, driftwood and furs were exchanged for wages. The availability of a wider range of goods at lower prices was the added incentive many native people needed to draw them away from the fur trade. By 1906, however, the price of baleen (whalebone) had fallen and the whaling period ended. Fortunately, fur trading was still active in the Mackenzie region, and native people quickly redirected their economic activities.

By 1912, the fur trade had absorbed most people who had been occupied by whaling and the gold rush. Complex needs had been created over the previous 20 years, and most northern natives had become irrevocably bound to the fur trade. The next 20 years would see the development of a highly efficient and complex hunting and trapping economy where most participants were interested in trade and/or settlement life.

4.3.2 N.W.T.

The fur trade closely followed, and sometimes preceded the explorers in the N.W.T. south of the tree line. The Indians brought the fur they trapped to trading posts to exchange for firearms, knives and other necessities, and fur long remained a significant export well into the early 1900s.

As in other parts of Canada, the fur traders opened the way for other agents of change, particularly missionaries of the Anglican and Roman Catholic faiths. Missionaries brought cultural change to the area and eased relations between Indian and Inuit peoples. The presence of missions and, later, mission schools at the various trading posts increasingly attracted northern natives and gradually led to the establishment of permanent settlements. By the end of the 1800s, settlements dotted the shores of the Mackenzie River right up into the delta. Because of the slump in the whaling industry and the gold rush, Inuit and even natives from Yukon were attracted to the fur trade industry. Trading along the Mackenzie River subsequently continued to be the primary economic activity.

In central and eastern N.W.T., there was little to attract the fur trade north of the tree line. Fur resources were scarce and Inuit groups concentrated on the harvesting of sea mammals. Unlike the west, it was the whalers who sailed in the wake of the exploring ships. By 1820, they had entered Lancaster Sound and the whale fishery soon spread down the east coast of Baffin Island. In 1860, commercial whaling began in Hudson Bay, but by the end of the century, the industry was in decline owing to over-exploitation, the introduction of mineral oil and the availability of baleen substitutes. In the west, whalers from Alaska appeared in 1889, but the industry had run its course by 1910. Several whalers had established year-round stations in the Arctic where they carried out some trading with the Inuit. This was not very successful, and gradually the whalers withdrew. As in Yukon, the early contacts of the native people with no immunity to many diseases prevalent in the south led to a disastrous reduction in the native population.

The N.W.T. was governed by Ottawa during this period. The position of Commissioner was filled by the Deputy Minister of the Interior, and all members of the N.W.T. Council were federal civil servants.

Administration of the North was conducted through the North West Mounted Police posts scattered throughout the territories.

There was little interest in non-renewable resources. During this time, however, the discovery of oil by Imperial Oil at Norman Wells in 1920 initiated a short-lived surge of activity in petroleum exploration along the valley. This was followed by extensive mineral prospecting made much easier by the development of bush flying. Mining of pitchblende, discovered at Great Bear Lake in 1930, and then of gold, discovered in the Yellowknife Bay area of Great Slave Lake in 1933, began in the years immediately before World War II and provided a convenient market for Norman Wells oil.

In 1933, the Eldorado Mine on Great Bear Lake began production of uranium concentrates containing radium. Consolidated Mining and Smelting Company milled its first gold ore from the Con-Rycon mine at Yellowknife in 1938. Owing to a labour shortage, the mine was closed in 1943 and was not reopened until 1946.

4.4 World War II and Subsequent Defence Activities

World War II had a dramatic effect on the northern landscape. It began in a small way with the need for meteorological information for weather forecasting, a need so important that the Germans, too, established secret weather stations in Greenland and northern Labrador.

The entry of the US into the war, however, led to activities on a scale which must have seemed incredible to the native inhabitants of the North. In the west, there was the chain of airfields which formed the Northwest Staging Route for the delivery of aircraft to the USSR, the Alcan Highway built to connect them and the Catel telephone line to provide communications. There was also the Canol project, which included development of the Norman Wells oilfield, improvement of communications along the Mackenzie Valley, pipelines between Norman Wells and Whitehorse and from Whitehorse to Haines, Watson Lake, and Fairbanks and a refinery at Whitehorse. In the east, the Crimson Staging Route was built through Baffin Island and Greenland to ferry aircraft to Europe and casualties to America. Though gold mining declined, the pitchblende at Great Bear Lake increased in importance with the advent of atomic weapons research in the United States.

The war brought large numbers of US servicemen and civilians into the North, and in many areas they greatly outnumbered Canadians.

The Cold War meant new major defence projects, including weather stations in the Queen Elizabeth Islands, a Low Frequency Loran (long-range radio aid to navigation) chain, a pipeline from Haines, Yukon, west to Fairbanks, Alaska, the Distant Early Warning (DEW) Line, Strategic Air Command air refuelling bases and communications for the Ballistic Missile Early Warning System. These defence activities gave to the North airfields, roads, communications, navigational aids and other infrastructure much earlier and of a much higher standard than could have been justified by civil needs, though not always in the places civil needs would have indicated.

A Special Service Force with responsibilities for northern operations carries out an annual exercise north of 60°. An important element in the military presence is the Canadian Rangers. Established in May 1947, the Rangers are composed primarily of Indians, Métis and Inuit and function as a component of the Reserve Force. The Rangers, with approximately 650 members, undertake patrol activities in sparsely settled and isolated areas where regular Canadian Forces do not provide a permanent presence. Their role is to collect information concerning the local area to assist other elements of the Canadian Forces. They also act as guides for Canadian Forces units and instruct them in survival techniques.

Through modernization programs in the 1980s, elements of the aging Distant Early Warning (DEW) Line are being retained, upgraded, and augmented by new sites along the Labrador coast and Baffin Island. These sites will be known as the North Warning System (NWS) and will consist of 11 long-range and 36 unmanned short-range radar sites. Five upgraded airfields called Forward Operating Locations (FOLs) will be established to improve the North American Aerospace Defence Commands' (NORAD) mission of detection and identification of intruding aircraft.

4.5 Development Since World War II

4.5.1 Yukon

The war reversed the decline in the population of Yukon which had followed the gold rush and helped pick up the economy which had suffered from the decline in fur prices during the 1930s. Improvements in communications, and particularly the Alcan Highway from British Columbia, brought prospectors and mining companies back into the territory. Ore bodies which had been marginal became profitable. Copper was again mined at Whitehorse, and production of lead and silver was expanded near Mayo. An asbestos mine at Cassiar in northern B.C. trucked its fibre to Whitehorse via the Alcan Highway and then railed it down to Skagway, Alaska. The Alcan Highway (renamed the Alaska Highway) made Whitehorse an increasingly important transportation centre. Tungsten concentrates from Flat Creek in N.W.T. were also trucked south along the Alaska Highway, and a large asbestos mine at Clinton Creek near Dawson was in production for several years before its ore was exhausted. By far the most important development, however, was the lead-zinc property at Anvil, 290 km north of Whitehorse. The value of its production soon exceeded that of all the rest of the territory and Faro, the town built to service it, quickly became the second-largest community in the territory.

To support these mining developments, several roads were built throughout Yukon. In 1951, a road was completed between Whitehorse and United Keno Hill silver mine near Mayo. Four years later, the Keno-Whitehorse road was connected to Dawson City from Stewart Crossing, forming what is now the Klondike Highway. The completion of this road to Dawson City later justified the construction of the Dempster Highway north from Dawson City to Eagle Plain, and later into the Mackenzie Delta (1970s).

Dawson City, bypassed by the Alaska Highway, was little affected by these mining activities after the war, and the fixed price for gold ensured its continued decline. The transfer of the territorial government from Dawson to Whitehorse in 1953 was inevitable. Today placer mining is still important in the Dawson area, and the Klondike Highway brings many tourists north from Whitehorse and farther south on their way to Alaska.

Throughout the 1950s and 1960s a definite roads policy began to emerge. It encouraged road construction that would lead to economic development and resulted in a comprehensive Yukon road network. Today, every community in Yukon is located on a road, with the exception of Old Crow in the northwest.

The devolution of administrative authority to elected representatives was, however, slow and gradual until 1979, when the Minister of Indian Affairs and Northern Development instructed the Commissioner to hand over many of his responsibilities to the Executive Council of the territory. Yukon has been represented in the Federal Parliament since 1947, gaining the right to their own territorial representative in 1952.

4.5.2 N.W.T.

In the N.W.T., in contrast to Yukon, production of gold increased after World War II. For many years, gold and uranium, both of which were easy to transport, were the only significant exports. The main economic stimulus was provided by defence activities and government construction of schools, nursing stations and especially the new town of Inuvik, built to replace Aklavik as the administrative centre for the Mackenzie Delta. A highway was built to Hay River from the south, but it required the completion of the parallel railway in 1964 to bring Pine Point, a long-known major lead-zinc property, into production.

The development of an extensive road network has never taken place in the N.W.T. Currently, roads are found in the Mackenzie Delta and in the southern portions of western N.W.T. The main highway, the Mackenzie, extends from Grand Prairie, Alberta to Wrigley, N.W.T.

During the 1950s, the petroleum possibilities in the Arctic Islands began to be recognized. Exploration and drilling were carried out before the discovery of a major field at Prudhoe Bay on the Arctic coast of Alaska gave tremendous impetus to the search for petroleum throughout the North. Large gas fields have been located in the Sverdrup Basin and the Mackenzie Delta, and interest is now centred in the Beaufort Sea, which has substantial proven reserves of oil.

In 1944, Eldorado Mining and Refining, a Crown Corporation, acquired all assets of the Eldorado mine. The Port Radium mine on Great Bear Lake began production of fissionable uranium for the war effort (Manhattan Project) in 1942. The mine was closed in 1960 and subsequently operated between 1976 and 1981 as a silver mine by Echo Bay Mines Ltd. In Yellowknife, Giant Yellowknife Mines Ltd. began gold production in 1948; it has continued to be a major gold producer. At Rankin Inlet on the west coast of Hudson Bay, nickel-copper concentrates were produced from 1957 to 1962. The Nanisivik lead-zinc mine on Strathcona Sound on northern Baffin Island began production in 1976.

The Cullaton Lake gold mine near Cullaton Lake in southern Keewatin District began gold production in October 1981. Operations were suspended in 1985. Echo Bay Mines' Lupin Mine at Contwoyto Lake in northeast Mackenzie District began gold production early in 1982. The Polaris lead-zinc mine on Little Cornwallis Island (75° 30′ latitude and 96° 30′ longitude) began production in November 1981.

Both the Nanisivik and Polaris mines are on tidewater, where transportation is relatively cheap, though seasonal. Those mines involved in gold production ship their products south by air.

A major breakthrough in demonstrating the feasibility of commercial traffic in arctic waters occurred in 1969. Escorted by a Canadian icebreaker, the 155,000-tonne ice-strengthened, steam tanker *Manhattan* successfully navigated the Northwest Passage arriving in Sachs Harbour on September 15. The route of the tanker is shown in Figure 4-1.

These economic developments have affected the native population both positively and negatively. Similarly the provision of education, health, housing and other social services has had numerous effects. The native population has increased rapidly and has moved from small camps based on hunting to the larger settlements where these services can be obtained. With the various health, housing and social services offered, their standard of living has improved greatly. However, the magnitude and speed of change has led to social problems such as alcoholism, crime and family violence.

Constitutional change has also been rapid. The appointed members of the Executive Council of the N.W.T. were replaced by elected members, the seat of government was moved from Ottawa to Yellowknife in 1967 and elected members now head all departments of the territorial government. The N.W.T. achieved joint representation in the Federal Parliament in 1947. In 1958, all of the N.W.T. was represented by one member. In 1979, the N.W.T. was divided into two ridings, Nunatsiaq and Western Arctic.

An important development in the last 20 years has been the formation of native organizations with the goals of defining and defending what they consider to be their rights. Land claims, new political boundaries and self government have become dominant issues throughout the North.

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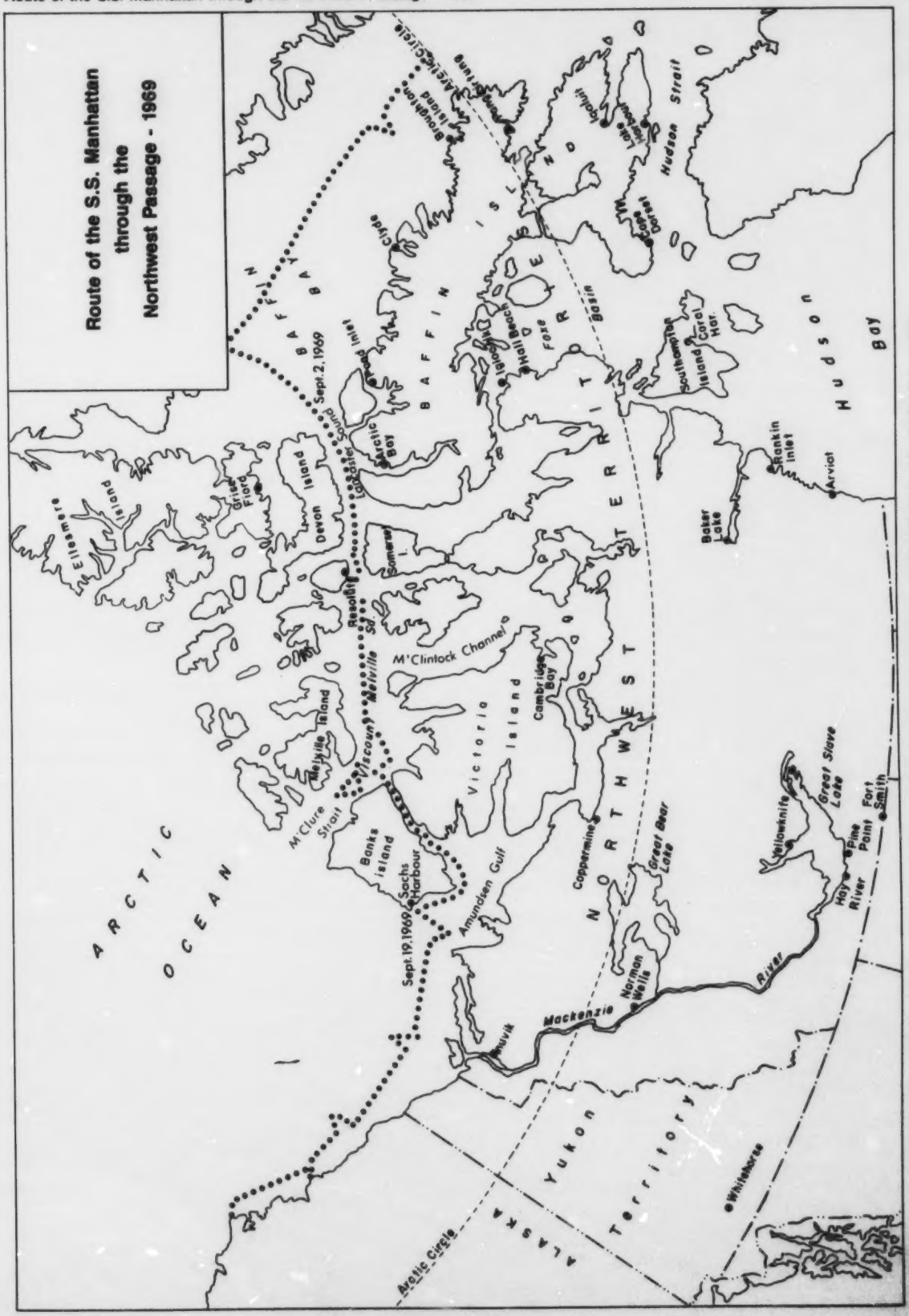
Figure 4-1
Route of the S.S. Manhattan through the Northwest Passage - 1969



SOURCE: DONAT PHARAND, THE LAW OF THE SEA OF THE ARCTIC WITH SPECIAL REFERENCE TO CANADA, p.52

5.0 Native Organizations and Land Claims North of 60°

5.1 The Recognition of Native Claims

5.1.1 Background

Indian and Inuit people have occupied land in Canada for many centuries. Comprehensive native land claims arise when traditional land use (e.g., hunting, fishing) and occupancy, or aboriginal interest, has never been dealt with by treaty or legislation.

British colonial policy and Canadian government policy have generally recognized that aboriginal interest in the land had to be settled before non-native settlement could take place. The policy resulted in various treaties with Indian tribes. "Treaties of Peace and Friendship" were signed in the Maritimes from 1725 to 1779. The *Royal Proclamation of 1763* reserved specific lands for the use of Indians and called for the consent of affected Indians before the Crown could obtain clear title to any Indian land. "Land treaties" were instruments used by the Crown to clear lands of aboriginal title in Upper Canada, the Prairies, northeastern British Columbia and the western sub-Arctic from 1764 to 1923.

Two treaties were made in the North. Treaty No. 8, signed in 1899, covered the area south of Great Slave Lake and east of the Hay River, as well as parts of present-day northern Saskatchewan, Alberta and British Columbia. Treaty No. 11, signed in 1921, included the rest of the Mackenzie Valley in the N.W.T., part of the western Arctic coast and the southeastern tip of the Yukon. No further treaties were concluded even though most of the Yukon, the Arctic Islands, the central Arctic coast and the Keewatin district had not been covered by treaties. No treaties were ever concluded with the Inuit.

Although the terms of Treaties 8 and 11 provided for reserves, only the Salt Plains reserve No. 195 (created in 1941) and the Hay River Indian reserve No. 1 (created in 1974) were established. The federal government appointed a commission in 1959 to investigate the unfulfilled land provisions of the treaties in the N.W.T. The commission found the reserve allotments to be out of date and recommended that the treaties be renegotiated. The treaties were to include: outright ownership of small household plots, compensation for lands lost, and a percentage of Crown revenues from oil, gas and mineral developments. The government did not act on these recommendations.

The Dene Nation representing Indians in the Mackenzie Valley, considers the treaties to be agreements of peace and friendship — not surrenders of land. They have pressed for a land claim settlement. The government maintains that the treaties resulted in surrender of aboriginal title. It agreed, however, to negotiate a comprehensive settlement because the provisions of the treaties were not fulfilled.

The twentieth century, especially after World War II brought great changes to the economic conditions and ways of life among native northerners. Trapping declined as the principal income source and wages and government assistance became more important. Hunting, trapping and fishing, however, remain essential elements of both the household economy and the social and cultural life of native people.

Most native northerners identify very strongly with the land. Many native people felt threatened by the flood of proposals in the 1970s for major developments, such as a gas pipeline and a highway in the Mackenzie Valley, and the accelerated exploration for oil, gas and minerals in many parts of the North. Native communities and newly formed regional native organizations in the North opposed these projects, frequently attracting the attention of national media.

The opposition to development projects rapidly became a demand to settle land claims. Other events quickened the process. The reorganization and revitalization of national and regional native organizations began about 1968. The government began funding these organizations in 1970, first for specific projects and then to help keep the organizations themselves going. Regional native organizations soon formed in the N.W.T. and Yukon.

Between 1968 and 1982, seven native organizations were formed in the North. In Yukon, there was the Yukon Native Brotherhood and the Yukon Association of Non-Status Indians. For claims negotiations, they later combined to become the Council for Yukon Indians. In the N.W.T., five groups were formed:

- the Dene Nation (formerly Indian Brotherhood of the N.W.T.);
- the Metis Association of N.W.T.;
- the Committee for Original Peoples' Entitlement (COPE);
- the Tungavik Federation of Nunavut (TFN) representing Inuit claims and territorial constitutional positions in the N.W.T.; and
- the Inuit Tapirisat of Canada (ITC) providing national representation for the Inuit.

ITC is the national organization of Inuit in Canada with a head office in Ottawa. Until the fall of 1982, ITC was responsible for negotiating the land claim settlement in the eastern N.W.T. on behalf of regional Inuit affiliates in the central and eastern Arctic, formed in the late 1970s. Since then, the Tungavik Federation of Nunavut has been negotiating the settlement. It was formed for that purpose.

Other factors influencing native land claims in Canada include the passage of the *Alaska Native Claims Settlement Act* by the US Congress in 1971. This was followed in 1973 by three important court judgments — the Calder case in British Columbia (Nisga'a assertion of native title), the Malouf judgment in Quebec (interlocutory injunction in James Bay development) and the Morrow judgment in the N.W.T. (caveat case). These three cases helped support the native land claims.

Northern native people want an active voice in the economic development of the North. They also want to participate in the development projects. They see the land claims settlements as a way of achieving these goals because they will be involved in land management and planning, as well as own large land areas. Native groups in the North are planning to use the lands and funds from the settlements to play a major role in resource development.

Native people, however, will not destroy their homelands, cultures and lifestyles for the sake of economic development. They are concerned about environmental protection, sound land management and

planning and proper wildlife management. They feel the claim settlements will not only ensure their involvement in economic development, but also help them preserve traditional ways of life.

5.1.2 Native Claims Policy

The federal government's response to these developments led to the 1973 Statement on Claims of Indian and Inuit People. This recognized two broad classes of native claims: *comprehensive claims*, based on aboriginal title and *specific claims*, concerning grievances about the government's administration of Indian lands and other assets under the *Indian Act* or other statutes, and of Indian treaties. All claims in the North have been comprehensive claims.

The government reviewed its comprehensive land claims policy in 1981 and released a policy statement called *In All Fairness — A Native Claims Policy*. There was subsequent dissatisfaction with features of the policy. Native groups expressed serious concern about the slow rate of progress in negotiations and the growing inconsistency between the comprehensive land claims policy and other federal policy initiatives. They particularly object to the practice of seeking to extinguish all aboriginal rights and interests in the settlement area in exchange for benefits provided through a settlement agreement. They feared that other rights, unrelated to the disposition of lands and resources, might be affected in the process. They saw this "blanket extinguishment" approach as inconsistent with the constitutional recognition and affirmation of existing aboriginal rights in section 35 of the *Constitution Act, 1982*, and with the process of seeking to define such rights in constitutional discussions.

A task force headed by Murray Coolican was formed to deal with these concerns. These included the need to ensure consistency with other policy positions (particularly on aboriginal self-government), and the need to expedite negotiations. A revised comprehensive land claims policy was adopted in December 1986 on the basis of this report. The revised policy provides for new approaches to the cession and surrender of title, self-government, wildlife and environmental management, the inclusion of offshore areas in negotiations, resource revenue-sharing and negotiating procedures. Where no changes were made, the previous policy remains in effect.

5.1.3 The 1986 Comprehensive Land Claims Policy

The 1986 Comprehensive land claims policy has six sections. These include: objectives, scope of negotiations, self-government, involvement of territorial governments, protection of aboriginal and non-aboriginal interests and procedures.

5.1.3.1 Objectives

The Government of Canada is committed to the resolution of comprehensive land claims through the negotiation of settlement agreements. These agreements must be equitable to both native people and other Canadians, and must represent final settlements of land claims.

Settlement agreements will clarify the rights of ownership and use of land and resources in those areas where treaty or law have not dealt with aboriginal title. Agreements will also establish for the future what provisions may be changed and under what circumstances. The claimant group will receive defined rights, compensation and other benefits in exchange for relinquishing all rights relating to the title of the disputed land.

It is recognized, however, that land claim negotiations are more than real estate transactions. In defining their relationship, native people and the Government of Canada want to ensure that the continuing interests of claimants in settlement areas are recognized. This will encourage self-reliance, economic development, and cultural and social well-being among native groups. Land claim negotiations will also provide a way for native groups and the federal government to pursue shared objectives, such as self-government and economic development.

The federal government seeks to ensure consistency between the comprehensive land claims policy and other federal policies for aboriginal people, for the N.W.T. and Yukon, and for Canada as a whole. An equitable application of the policy also means that the overall fairness of settlements will be ensured.

5.1.3.2 Scope of Negotiations

The main purpose of comprehensive land claims negotiations is to clarify rights to lands and resources. Claims settlements are also used by native groups to take advantage of economic opportunities and establish the means to make decisions about future renewable resource use. Other issues related to land and renewable resource management, and the interests of other parties, are also an integral part of negotiations.

The Government of Canada is prepared to address a range of issues within the framework of the policy. These include: land selection; self-government; environmental management; resource revenue-sharing; hunting; fishing and trapping rights; and other topics. Framework agreements, set up during preliminary negotiations, will identify what topics the parties will discuss during negotiations and the parameters of the negotiations.

Alternatives to Extinguishment

The requirement that native groups agree to extinguish all aboriginal rights and title as part of a claims settlement has provoked the strongest reaction from native people. The federal government examined this feature of the former policy carefully and concluded that alternatives may be considered provided that certainty of land and resource ownership is established. Acceptable options are:

(1) the cession and surrender of aboriginal title throughout the settlement area in return for a grant to the beneficiaries of defined rights in specified or reserved areas and other defined rights applicable to the entire settlement area; or

(2) the cession and surrender of aboriginal title in non-reserved areas, while:

allowing any aboriginal title that exists to continue in specified or reserved areas; or

granting to beneficiaries defined rights applicable to the entire settlement area.

Individual negotiations determine what approach will be used. Both parties must agree to the precise wording and the Department of Justice is consulted to ensure that both parties understand the legal implications of the approach and language used to attain certainty.

The aboriginal rights ceded in the claims process are related only to the use of and title to land and resources. Other aboriginal rights that are defined through the constitutional process or recognized by the courts, are not affected by the policy.

Lands

The land area claimed by a native group is a key subject for negotiation. Lands claimed by native groups must be traditional home land that are currently used and occupied.

Sometimes more than one group claims an area of land and resources, and the claimants cannot agree on boundaries, resource access or land-sharing arrangements. Until the dispute is resolved, no lands will be granted.

Offshore Areas

In many cases, the areas traditionally used by aboriginal groups include offshore areas. Negotiations concerning harvesting rights in offshore areas are conducted according to the same principles that apply to land claims. Participation in environmental management and resource revenue-sharing arrangements may also be negotiated in offshore area claims.

Wildlife

The Federal government recognizes the economic, social and cultural importance of hunting, fishing and trapping for many aboriginal communities. Settlements may provide for preferential wildlife harvesting rights on unoccupied Crown lands and exclusive harvesting rights on selected lands. An agreement may also provide for preferential harvesting rights for some species throughout the settlement area or within specified parts of the settlement area. In all cases, settlements must clearly define the terms of access to wildlife resources for native groups.

Unless otherwise provided in the settlements, however, existing laws for hunting, fishing and trapping activities, including public safety and conservation measures, apply to native groups.

Subsurface Rights

Subsurface resources fall within federal and provincial jurisdiction. Subsurface rights on some Crown lands and on settlement lands of native groups are provided through claim settlements.

Granting subsurface rights close to communities, or in critical wildlife habitat areas, can help avoid land use conflict in key areas. Subsurface rights may also, in appropriate circumstances, provide natives with the opportunity and incentive to participate in and benefit from resource development.

Resource Revenue-Sharing

Many claimant groups live in areas where non-renewable resource development is and will remain a major economic activity. So that native groups may share in the revenues from these developments, the federal government is prepared to negotiate resource revenue-sharing arrangements. These arrangements would give claimant groups a percentage of federal royalties from the extraction of resources in the settlement area (including offshore areas).

Revenue-sharing arrangements are not resource ownership rights, and will not establish joint management boards to manage subsurface and offshore resources. The federal government will be responsible for resource revenue instruments and must maintain its ability to adjust the fiscal regime.

Resource revenue-sharing may be limited by:

an absolute dollar cap;

a time cap of not less than 50 years from the first payment of the royalty share (at which time arrangements will be renegotiable); or

a reducing percentage of royalties generated.

Any arrangements between the federal and territorial governments about possible resource revenue-sharing must respect any arrangements in claim settlements. The federal government will consult claimant groups about the implications of unresolved claims for any proposed federal-territorial arrangement on resource revenues.

Environmental Management

Claim Settlements must recognize aboriginal interests in environmental concerns, particularly relating to wildlife management and the use of water and land. Native groups can safeguard these interests by sitting on environmental advisory committees, boards and similar bodies, or by participating in government bodies with decision-making powers. Such arrangements must recognize that the government has an overriding obligation to protect the interests of all users, ensure resource conservation, respect international agreements and to manage renewable resources within this jurisdiction.

Compensation

Monetary compensation comprises various forms of capital transfers, including cash, resource revenue-sharing and government bonds.

Agreements clearly define the amount of compensation; no money can be transferred until the final settlement is reached. The amount of compensation may be adjusted according to other arrangements negotiated in the settlement. For example, the amount of cash compensation may be reduced because of arrangements concerning resource revenue-sharing. Outstanding debts that the claimant group owes the Crown will be deducted from final settlements.

Management of Settlement Assets

Settlements must set up corporate structures that will protect and enhance the settlement assets based on sound management practices and democratic control.

Programs

Beneficiaries of land claim settlements are still eligible for government programs. Government programs are unaffected by land claims settlements.

Taxation

Cash compensation paid under a settlement is regarded as a capital transfer and is exempt from taxation. Any income derived from such compensation, however, is subject to the provisions of the *Income Tax Act*. Other elements such as shared resource revenues, are subject to prevailing taxation legislation and practices.

Unimproved lands may be exempted from property taxation except in relation to municipal services.

Beneficiaries

Those who benefit from settlements must be Canadian citizens of native ancestry from the settlement area, or their descendants, or other persons as mutually agreed. Beneficiaries cannot have previously benefited from another comprehensive claims settlement.

The definition of beneficiaries must not affect the status of persons pursuant to the *Indian Act*.

5.1.3.3 Self-Government

Self-government has been called the key to change for native people. The federal government's policy approach to self-government acknowledges the desire expressed by native communities to exercise greater control and authority over their affairs. The government's policy objectives on community self-government are based on the principles that:

- local control and decision-making must be substantially increased;
- flexibility is needed to recognize diverse needs, traditions and cultures; and
- greater accountability to community members must be achieved.

Any approach to self-government must respect existing constitutional principles and be consistent with government practices. Self-governing objectives are being advanced through public government and the representation of native people on various governing bodies. Political rights, therefore, are not exclusively reserved for native people, but aboriginal interests are incorporated and represented in institutions of public government.

In the comprehensive land claims policy, self-government is an issue that is closely tied to the need of native people to be involved in managing land and resources, and in developing self-governing institutions. Self-government might be negotiated, when settling claims, to create community-based self-government on designated lands. In other cases, ensuring that management boards include native representatives would help promote aboriginal interests during decision-making processes. This would, however, be subject to the federal and territorial legislation in those areas.

The framework agreements will have to set out how self-government will be negotiated. In keeping with the federal government's general policy on self-government, native groups themselves will play a major role in defining the content of self-governing arrangements, subject to existing constitutional principles and practice. The self-government institutions will be negotiated only after the settlements. Legislation will be required to establish the scope of law-making authority granted to any new governing bodies. Most aspects of such arrangements will not receive constitutional protection, however, unless a constitutional amendment to this effect is in force.

5.1.3.4 Involvement of Territorial Governments

The federal government has jurisdiction over Indians and Indian lands.

In the territories, lands and resources also fall under federal jurisdiction. Negotiations in these areas are bilateral and lead to federally legislated settlements complemented by territorial legislation. Territorial governments participate fully in negotiations and the application of land claims policy, under the leadership of the federal government.

5.1.3.5 Protection of Aboriginal and Non-Aboriginal Interests

Settlements must respect the rights and interests of both aboriginal and non-aboriginal people. Through the negotiating process, claimant groups and government have an opportunity to reconcile these interests equitably.

Aboriginal Rights

Only land-related rights are negotiable. These rights may be affected by measures used to establish certainty in settlements. Any other rights remain unaffected.

Appropriate interim measures may be established to protect native interests while the claim is being negotiated. These measures are identified during preliminary negotiations.

Public and Third Party Interests

In defining the rights of native people, the Government of Canada does not intend to prejudice the existing rights of others. The public interest and third party interests must be respected in negotiating settlements and, if affected, dealt with equitably. Provisions must be made to protect the interests of current non-aboriginal users of the land, and the right of the public to enjoy recreational activities, hunting and fishing on Crown lands.

Information about the progress of claim negotiations is available to the public. Federal negotiators are also responsible for maintaining appropriate and effective communication with third parties whose interests are directly connected to issues under negotiation.

Public Access

Settlements will provide for public access to selected or retained native lands and for right-of-way for necessary public purposes. Access rights for transportation routes in and through the settlement area must also be provided.

Subsurface right holders, when necessary, must have access to settlement lands for the exploration, development and production of resources. They may not exercise these rights without fair compensation as determined by negotiations or arbitration.

Lands granted to claimants through settlements are protected from expropriation.

5.1.3.6 Procedures

Statement of Claim

The claims process begins with a statement of claim and appropriate evidence prepared by the claimant group. A statement of claim should contain:

(1) a statement that the claimant group has not previously been subject to a treaty;
(2) a documented statement from the claimant group that it has traditionally used and occupied the territory in question and that it continues to do so;
(3) a description of the extent and location of such land use and occupancy, including a map outlining the approximate boundaries; and
(4) identification of members of the claimant group including: the names of the bands, tribes or communities on whose behalf the claim is being made; the claimants' linguistic and cultural affiliation; and about how many people the claimant group represents.

Acceptance of Claims

After receiving a statement of claim, the Minister of Indian Affairs and Northern Development reviews the submission and accompanying documentation. Next, the advice of the Minister of Justice is sought to determine whether it is legally acceptable. The Minister of Indian Affairs and Northern Development must advise the claimant group within twelve months whether the claim is accepted or rejected. When a claim is rejected, the Minister must provide the reasons in writing.

Preliminary Negotiations

The government begins negotiating a framework agreement when the Minister of Indian Affairs and Northern Development judges that:

- the negotiations will likely be successful;
- the settlement of claims in the area are a priority;
- when territorial involvement is needed.

Negotiations are conducted only with legitimate representations of the claimants, as judged by the Minister. The Minister also appoints senior federal negotiators from within or outside the public service. They receive initial negotiating mandates from the federal government. Bilateral discussions are held with the territorial governments concerned about their participation in negotiations.

Framework Agreements

Framework agreements determine the scope, process, topics and parameters for negotiation. Approaches for obtaining certainty of ownership of lands and resources, and the order of the topics discussed and timeframe of negotiations are included in the framework agreements.

The federal and territorial governments involved will consider and approve the framework agreements, including any substantial changes.

Agreements-in-Principle

The claimant group must endorse Agreements-in-Principle. This endorsement may be provided by resolutions of assemblies or by band councils. Agreements-in-principle are also considered and approved by the federal and territorial governments.

Implementation

Final agreements must have implementation plans. All agreements concerning land, title, shared resources (where applicable) and financial arrangements will be final.

Provisions in the implementation plan for management and decision-making agencies will be reviewed from time to time. They will be subject to legislative amendment if the parties agree that specific provisions are unworkable or obsolete.

The negotiating process conforms with the federal regulatory reform policy and Citizen's Code of regulatory fairness. Implementation plans must provide for periodic regulatory impact assessments to ensure the agreements still conform.

Final Agreements

Final agreements and implementation plans require the approval of the federal government and must be formally ratified by the claimants. Settlement legislation must be passed before the agreements come into effect.

Comprehensive Land Claims Steering Committee

A committee of assistant deputy ministers from government agencies and departments involved in claims negotiations was established. The committee reviews and provides advice to ministers on negotiating mandates, the negotiating process, framework agreements, agreements-in-principle and final agreements.

5.2 The Claims Settlement Process

5.2.1 Funding of Native Claimants

In 1969, the federal government began funding native groups and associations to enable them to conduct research into treaties and Indian rights. Later, a shift occurred to assist these organizations through contributions for the research and development of native claims in accordance with the federal government's policies on the resolution of specific and comprehensive claims.

Once the Minister accepts a claim for negotiation, interest-free loans are provided to claimants to help develop the claim, prepare a negotiating position, and conduct the negotiations. After reaching an agreement-in-principle, the loans bear interest. All loans can be paid out of the settlement. The contributions and loan-funding programs are administered by the Executive Secretariat, Executive Support Services, INAC.

Claims funding is separate from the core funding provided to organizations through the Department of The Secretary of State. It is also separate from all special funding provided to native organizations to allow their participation in public hearings on development projects; such special funding is administered by various government departments including INAC.

Three final agreements have been reached through the comprehensive claims process and proclaimed as law. They are:

- the 1975 James Bay and Northern Quebec Agreement, with the James Bay Cree and the Inuit of northern Quebec;
- the 1978 Northeastern Quebec Agreement with the Naskapis of Shefferville; and
- the 1984 Western Arctic Final Agreement with the Inuvialuit. (See Section 5.3.3).

5.3 Comprehensive Land Claims in the North

There are currently three comprehensive land claims in the North that are at various stages of negotiations. A fourth claim, the Inuvialuit (Western Arctic) claim covering the settlements of Sachs Harbour, Holman, Paulatuk, Tuktoyaktuk, Inuvik and Aklavik in the Northwest Territories, was settled.

5.3.1 Council for Yukon Indians (CYI) Claim

The CYI, representing all people of Yukon native ancestry (approximately 6,500), was formed in 1973. It united the Yukon Native Brotherhood and the Yukon Association for Non-Status Indians for the purpose of negotiating their claim originally entitled "Together Today for Our Children Tomorrow" and submitted to the federal government on February 14, 1973. Between 1974 and 1979, a number of attempts were made to reach negotiated settlement of the claim with agreement falling short of achievement in each case.

Renewed and intensive negotiations, begun in 1980 with the appointment of a Chief Government Negotiator, led to the initialling by the negotiators for Canada, the Yukon Territorial Government and the CYI of an overall Agreement-in-Principle in January 1984 covering all major settlement issues, including the selection of land and local government for most of the Yukon bands. The Agreement-in-Principle was formally approved by the federal government in April 1984 and was ratified by eight of the twelve Yukon bands by July 1984.

However, at general assemblies in August and October 1984, the CYI passed resolutions calling for the renegotiation of major elements of the Agreement-in-Principle. It also called into question the support of those bands that had already ratified it.

After the announcement of the new federal Comprehensive Claims Policy in 1986, a new mandate for the CYI claim was developed. Negotiations resumed in 1987 and an Agreement-in-Principle was concluded in November 1988. The Agreement-in-Principle, which was ratified by all parties, provided for cash compensation, land ownership including the subsurface and self-government arrangements. A framework agreement was signed in May 1989 which provided for:

- $257 million (1988) in cash compensation;
- 41,440 km^2 of land (25,900 km^2 will include subsurface ownership) or 8.6 per cent of the Yukon land mass; and
- an obligation to negotiate self-government arrangements.

Negotiations are proceeding toward an umbrella final agreement and individual agreements with each of the 13 Yukon Indian bands.

5.3.2 Dene/Metis Claim

This claim has been under active negotiation since 1981. Following almost three years of intensive negotiations, the Prime Minister and Dene/Metis leaders of the Mackenzie Valley formally signed the Dene/Metis Comprehensive Land Claim Agreement-in-Principle on September 5, 1988, in Fort Rae.

Approximately 11,000 Indians and 2,000 Metis comprising approximately 40 per cent of the population of the area inhabit 27 communities in the Mackenzie Basin of the N.W.T. The Agreement provided certainty of rights and title to the use of land and resources for the Dene and Metis, the government, and the people of Canada. It was to provide the Dene and Metis with ownership of 181,299 km^2 of land, including 10,101 km^2 of subsurface ownership; financial compensation of about $500 million; and a share of any resource royalties the government collects in the future. Participation in public government management boards was guaranteed to the Dene/Metis for land use planning, environmental impact and assessment, land and water management, and wildlife management.

The agreement was effectively rejected by the Dene/Metis annual assembly in 1990. It was then agreed that the five Dene/Metis regions would have the option of pursuing regional settlements based on the Agreement. Community self-government will be under discussion in a forum completely separate from that of the land claim.

5.3.3 The Inuvialuit (Western Arctic) Final Agreement

The Committee for Original Peoples' Entitlement (COPE), representing approximately 4,500 Inuvialuit living in six communities in the Western Arctic Region and originally part of the general Inuit claim, submitted a separate claim in May 1977 in the light of anticipated pipeline construction in their area of interest. An Agreement-in-Principle was signed by COPE and the federal government on October 31, 1978. It dealt with land, wildlife, financial compensation, eligibility, corporate structures and economic and other measures. In May 1979, agreement was reached on 85 per cent of the remaining lands over which the Inuvialuit would have surface rights. Negotiations towards a final agreement were interrupted during the May 1979 and February 1980 elections and during the ensuing government's review of claims policy. Attempts to resume negotiations were unsuccessful until November 1982, when a series of meetings culminated in the preparation of an aide mémoire which identified the agreed-upon major elements remaining to be negotiated.

Formal negotiations with the Inuvialuit began on January 20, 1983. There was extensive discussion of contentious issues arising from the Agreement-in-Principle. A proposed final agreement was initialled by the chief negotiators for Canada and COPE in December 1983. The Final Agreement was approved by Cabinet in March 1984. Claimant ratification was completed in May 1984. Parliament subsequently passed the *Western Arctic (Inuvialuit) Claims Settlement Act* on June 26, 1984. It was proclaimed on July 25, 1984. A secretariat, established within the Northern Program of INAC, oversees implementation of the Act.

Under the settlement, the Inuvialuit received specific rights and benefits in exchange for relinquishing their interests based upon traditional use and occupancy. These rights and benefits include title to 91,000 square kilometres of land, (13,000 square kilometres with full surface and subsurface title; 78,000 square kilometres excluding oil, gas and specified mineral rights), cash compensation ($45 million in 1977 dollars), wildlife harvesting and management, economic measures (including a $10 million Economic Enhancement Fund) and Inuvialuit participation on advisory boards dealing with land use planning and environmental management. The Inuvialuit have also signed bilateral agreements with the Council for Yukon Indians, the Dene/Metis and the Tungavik Federation of Nunavut resolving their overlapping interests in the Inuvialuit Settlement Region.

With reference to the relationship of the Western Arctic agreement to territorial interests as a whole, laws of general application apply to all Inuvialuit lands as they do to all other private property. The government continues to regulate development activities and remains ultimately responsible for environmental management.

Inuvialuit lands remain subject to easements and rights of way which existed as of July 13, 1978. The public has a right of general access along navigable rivers and the right to cross Inuvialuit lands to reach other lands. While Inuvialuit lands may be leased, they cannot be sold except to other Inuvialuit or to the Crown. In the event Inuvialuit lands are needed for public purposes, they can be so acquired subject to the provision of alternative lands or financial compensation. Inuvialuit lands are exempt from property tax but improvements, as well as proceeds from development of Inuvialuit lands, are taxable in accordance with the laws of general application.

5.3.4 Tungavik Federation of Nunavut (TFN) Claim

The Tungavik Federation of Nunavut (TFN), formed in summer 1982 to take over the claims negotiation role of the Inuit Tapirisat of Canada (ITC), represents over 17,000 Inuit in central and eastern N.W.T. The Inuit claim to the area was first presented by ITC in February 1976 and has since undergone a number of revisions.

Early negotiations resulted in little progress because of debate over establishment of a new territory — Nunavut. Following meetings with the Minister of Indian and Northern Affairs in 1980, the Inuit agreed to proceed with land claims negotiations on the understanding that their aspirations for Nunavut would be dealt with outside land claims. Intensive negotiations got underway in late 1980, resulting in the initialling of wildlife provisions of an Agreement-in-Principle in October 1981, subject to review by the government and by the Inuit. Following this review, the amended provisions were reinitialled by the government and TFN in May 1986.

A government decision in November 1982 approving the principle of division of the N.W.T., (and consequently the possible establishment of Nunavut) created a favourable climate for further progress towards a land claim settlement.

The Cabinet approved a mandate in December 1987 to complete an Agreement-in-Principle with TFN. Through 1988 and 1989, sub-agreements covering most of the main elements of a claim settlement were concluded. The final elements for an overall Agreement-in-Principle for the claim were agreed to between the government and TFN on December 7 and 8, 1989. The AIP was ratified by all parties in February and March 1990 and was signed on April 30, 1990 in Igloolik, N.W.T. The main elements of the AIP include a total of approximately 350,000 square kilometres of land which includes 36,257 square kilometres with sub-surface rights and financial compensation of $580 million. The parties have set 18 months as the target for achieving a Final Agreement.

5.4 Native Organizations North of 60°

5.4.1 Objectives

The settlement of claims has from the outset been a central concern of every native organization north of 60°. It has not, however, been the sole function of any of them. Every organization seeks also to preserve and promote the culture and language of its members, to promote greater communication and self-awareness among them, to develop leadership and to represent the political and economic interests of its members in every possible sphere. Native organizations have usually obtained intervenor status at public hearings (to assess the impact of major developments) or at regulatory hearings. The intervention of native organizations at the Mackenzie Valley Pipeline Inquiry is perhaps the best known example, but it is now usual for these organizations to make representations in such forums as parliamentary committees, the Canadian Radio-television and Telecommunications Commission (CRTC), the National Transportation Agency (NTA), the National Energy Board (NEB) and the Territorial Water Boards.

Native organizations have worked together with other political bodies or groups such as the N.W.T. Legislative Assembly and southern environmental interests. They have frequently made common cause with each other, although there is at present no federated body representing the interests of all groups north of 60°.

The larger organizations now have dozens of people on their payrolls at head office as well as field staff in various communities. Some maintain regional offices and an Ottawa office. Native organizations have thus become significant employers, especially of native people, although each also employs non-native staff. Native organizations are thus playing a significant role in helping natives develop administrative and political skills.

5.4.2 Inuit Circumpolar Conference (ICC)

This international organization was founded in 1977 to promote the rights and interests of the Inuit of Alaska, Greenland and Canada. Resolutions passed at subsequent meetings in Nuuk, Greenland in 1980, in Iqaluit in 1983, and in Kotzebue, Alaska in 1986 dealt with culture, education, environment, wildlife, development, health and welfare, and policy issues. In 1983, the United Nations granted the ICC non-governmental organization status. In 1986 the general assembly was held in Kotzebue, Alaska, where the focus was on the adoption of Arctic policy principles. In July 1989, a general assembly was held in Sisimiut, Greenland. Protection of the environment in the polar region was a major topic of discussion. For the first time representatives of 1,600 Inuit from the Soviet Union were in attendance.

5.4.3 Other Developments

The roles and responsibilities of native organizations north of 60° have become sufficiently diverse that each has created a number of separate organizations or agencies. Some of these organizations, such as regional housing or development corporations, fulfill primarily economic functions. Others are primarily cultural in purpose and are concerned with areas like communications, the arts and language. Following a settlement of claims, the role of virtually every native organization can be expected to change and to expand.

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6.0 Government

6.1 Constitutional History and Evolution of Yukon and the N.W.T.

In 1870, with the purchase from the Hudson's Bay Company of the land then called the North-West Territories, Canada acquired 70 per cent of its present area. The building of a railroad to the Pacific and the resulting expansion of the Canadian population westward led to the establishment, in the short space of 35 years, of the provinces of Manitoba, Saskatchewan and Alberta, each with a responsible government in the parliamentary tradition. Full resource and land ownership was transferred to the new provinces 25 years later. The transfer to Ontario and Quebec of the parts of the original North-West Territories which abutted on those provinces was completed in 1912. What remained of the original North-West Territories became present-day Northwest Territories and Yukon, which comprise almost 40 per cent of the area of Canada.

The Klondike gold rush of 1898 was most important in the early history of Yukon, since the influx of miners and settlers was great enough to justify the establishment of the Yukon Territory in 1898. The *Yukon Act* provided for a Commissioner and Council, appointed by Ottawa, who were to administer Yukon subject to instructions from the Governor in Council. By 1908, all the members of the Council were elected and the Commissioner in Council legislated in the same manner as a provincial legislature. After the gold rush ended in 1901, the population of Yukon declined, the size of the Council was reduced and there was little significant constitutional development again until the 1950s. The evolution which took place from 1950 to 1970 amounted essentially to enlargement of the Council to reflect population growth and the establishment of an Advisory Committee on Finance to the Commissioner which consisted of three counsellors recommended by the Council.

The residue of the North-West Territories, the part now referred to as the Northwest Territories, never saw the early surge of constitutional growth which took place in Yukon. It remained sparsely populated and did not experience the same burst of development. The Commissioner and Council of the N.W.T. were all federal officials until after World War II and it was only in 1951 that elected members of the Council were added. From 1905 until 1963, the Deputy Minister of the Department of the Interior and its successor departments served also as Commissioner of the N.W.T. It was not until 1967 that the Commissioner became resident in the N.W.T.

6.1.1 Recent Developments

From 1950 to the present, the federal attitude has been one of tacit and at times explicit encouragement of political and constitutional maturation in the territories. During the past two decades the pace of constitutional evolution has accelerated. There have been significant steps toward responsible government and growing autonomy from Ottawa.

In 1971, as a result of pressure from the Council, the Commissioner of Yukon was instructed by the Minister of Indian Affairs and Northern Development to establish an Executive Committee consisting of the Commissioner, two assistant commissioners (one a federal and the other a territorial civil servant) and two elected Council members who were to be full-time executive officers paid from the Yukon consolidated revenue fund. The elected Committee members were to be appointed on the recommendation of the Council and were subject to its recall. Although the Commissioner remained ultimately responsible for the administration of government, as provided for in the *Yukon Act*, he was instructed to give the fullest possible consideration to the advice of the Executive Committee, particularly to that of the elected members. The elected members of the Committee were each to be assigned administrative responsibility for one or more departments and, having taken part in the formulation of the Committee's legislative program, they sponsored and defended bills put before Council and acted very much like a Cabinet.

In 1979, by ministerial instruction to the Commissioner, the installation of *de facto* responsible government in Yukon was completed. The Executive Committee was replaced by an Executive Council which now consists entirely of elected representatives. A political party system has emerged, with the leader of the majority party selecting members of the Executive Council and assigning portfolios. The Commissioner no longer takes part in the deliberations of the Executive Council and is bound by its advice in all areas for which the Commissioner in Council has jurisdiction under the *Yukon Act*, except for matters of special federal interest and responsibility. Control of the territorial budget rests entirely with the Executive Council. Thus, through the use of instructions to the Commissioner, responsible government (in which the executive is responsible to an elected legislature) has been established in Yukon. The Commissioner's role has been reduced from that of chief administrator to one that closely parallels that of a provincial lieutenant governor. However, these developments are not yet reflected in the *Yukon Act* which will be amended only after full consultation with the native people.

Instructions for the N.W.T. have not yet carried the devolution of *de facto* responsible government to quite the same extent. The Commissioner still takes an active part in the government of the territory. However, in 1975 he was directed to seek the advice of his Executive Committee (now Executive Council) and to give that advice the fullest possible consideration. The Territorial Council of 1975 resembled a Legislative Assembly and so styled itself. A Speaker was chosen by the members, and three elected members were given Executive Committee portfolios. The Executive Committee, which holds Cabinet-like responsibilities in relation to the Territorial administration, had formerly been made up of only the Commissioner, the Deputy Commissioner and the Assistant Commissioner. In 1979 an election resulted in a new Legislative Assembly being enlarged to 22 seats. This Ninth Assembly brought a large amount of legislation into law. The members also lobbied successfully for including aboriginal rights in the Canadian Constitution. Based on recommendations made by the N.W.T. Electoral Boundaries Commission, the number of electoral districts was increased from 22 to 24.

Further powers were devolved from the Commissioner to the Leader of the Executive Council in 1986. The Leader now chairs the Executive Council. The Minister of Finance chairs the Financial Management Board, replacing the Commissioner. In November 1987, the Ordinary Members' Committee was formed of those MLAs who were not chosen to sit on the Executive Council. The Committee acts as an informal organization to advise and counsel ministers in the territorial cabinet. The 15 MLAs are assigned portfolios to match those of the 8 ministers and are reponsible for questioning, guiding and advising the appropriate minister.

In response to the longstanding political aspirations of both native and non-native residents of the N.W.T., on November 26, 1982, the federal government also announced its acceptance in principle of the concept of subdivision of the vast area which presently constitutes the territory. These aspirations had led the N.W.T. Assembly to hold a plebiscite on the issue on April 14, 1982. A majority of the respondents subsequently voted in favour of division. Federal willingness to ultimately divide the N.W.T. will be dependent upon continued support for division by a majority of its residents, the achievement of a consensus among citizens of the N.W.T. and agreement with the federal government on the location of boundaries and the distribution of powers between territorial, regional and community levels of government. The N.W.T. Constitutional Alliance (a group formed of representatives of the major native groups and the Legislature and Government of the N.W.T.) has been taking the lead in consultations and deliberations aimed at achieving this consensus.

The federal government is committed to responsible government in the territories and it is generally assumed in the N.W.T. that the roles of the Commissioner and the Executive Council will ultimately follow a similar evolutionary process as occurred in Yukon. Responsibility for forests, fire management, health services, the scientific resource centres at Iqaluit, Igloolik and Inuvik, and the Northern Canada Power Commission have been transferred to the territorial government in recent years. Further transfers are under consideration, including DIAND's land titles office and Transport Canada's responsibility for arctic airports. Agreements-in-Principle on a northern energy accord were signed with the two territorial governments in 1988.

In August 1988 the federal government published *A Northern Political and Economic Framework*, which outlines the federal government's responsibilities and roles in the North. The Canadian government's goals are to develop responsible northern governments by transferring certain federal programs to the territorial governments, settling northern native land claims, promoting economic development and enhancing Canadian sovereignty in the Arctic.

6.2 Territorial System of Government

In their everyday operations, the territorial governments closely resemble those of the provinces. The area of legislative authority assigned to the two territorial councils practically duplicates that assigned to the provincial legislatures under the *Constitution Act, 1867*, the important exceptions being authority over lands and resources (except wildlife) and the power to legislate regarding the territorial constitutions.

The fundamental distinction between provincial and territorial government is the differing source and nature of the territorial constitutions as opposed to provincial constitutions. Provincial constitutions, which define the powers of the legislative and executive branches of government as well as the division of legislative power between the federal and provincial governments, are entrenched in the *Constitution Act* and are not subject to change by the federal government. The territorial constitutions, the *Yukon Act* and the *Northwest Territories Act*, however, are federal statutes legally subject to change at the will of Parliament.

Within themselves, these *Acts* contain aspects furthering the distinction. They vest executive authority in federally appointed commissioners who administer the governments of the territories under instructions given from time to time by the Governor in Council or the Minister of Indian Affairs and Northern Development. Thus, in law if not in practice, the commissioners fill two roles: each is the chief executive officer of a territory. At the same time, each is the representative of the federal government and in this latter capacity can be instructed to follow federal government directives. For instance, the Minister of Indian Affairs and Northern Development may instruct a commissioner to decline to give assent to territorial legislation. The lieutenant governors in whom executive authority in the provinces is formally vested are also federally appointed, but they are not, in practical terms, subject to federal direction.

Lieutenant Governors represent the Crown within provincial constitutions. A commissioner does not represent the Crown but merely the federal government. In his or her vice-regal capacity, a lieutenant governor is legally bound to follow the advice of the provincial Cabinet which, in turn, is responsible to the legislature. While a commissioner may be instructed by the Governor in Council or the Minister of Indian Affairs and Northern Development to be bound by the advice of the Executive Council in his or her territory, he or she can also be instructed by the same federal authorities not to be so bound.

This distinction has important ramifications for the level of responsible government existing in the territories. In the provinces, responsible government exists to the fullest extent. Executive action without exception is dictated by an elected Cabinet which is, in turn, responsible to an elected legislature. On a practical basis, the situation is almost the same in the territories, but the theoretical possibility does exist that the commissioner may be directed by federal authorities to take executive action contrary to the advice of the executive council.

Government in the territories also differs from the provinces in the legislative sphere. While the legislative powers of the territorial legislatures closely parallel those of provincial legislatures, these powers are devolved by Parliament and can always, legally, be removed. Provincial areas of legislative jurisdiction are entrenched. Territorial legislative jurisdiction, being defined by federal legislation (*Yukon Act* and *Northwest Territories Act*) is

always subject to be overridden by contrary federal legislation. The rare practical result of this is that if there is inadvertent conflict between territorial and federal legislation, the territorial legislation is automatically inoperative.

6.2.1 Territorial Revenue Structure

6.2.1.1 Federal Grants

Before 1985-86, the territorial governments received most funding from the federal government through negotiated grants annually. In 1985-86 a new funding method, adopted to finance public expenditures, brought the territories closer to full responsible government. This approach was based on a formula tested over a five-year period that began in 1985-86.

Beginning in the fiscal year 1990-91 a population growth factor has been introduced so that territorial expenditure requirements will be measured in per capita terms. The territorial revenue side of the formula will also be adjusted to measure territorial revenue raising capacities assuming tax rates more comparable to the provinces, but modified to recognize the unique economic and geographic circumstances of the territories.

In 1990-91 it is estimated that the N.W.T. and Yukon will be "entitled" to funding grants of $729.5 million and $196.5 million respectively.

6.2.1.2 Territorial Tax Base

The major revenue source of the two territories (as indicated above) is a transfer from the federal treasury. These transfers represent almost 56 per cent of the territorial expenditure budget in Yukon and 76 per cent in the N.W.T. The remaining revenues come from personal and corporate income taxes, which are now levied directly by the territorial assemblies, other direct taxes such as those on alcoholic beverages, real property taxes and various licences, and fees the territory imposes in the same way a province does.

The remaining portion of the territorial expenditure budget is paid for through the sale of services by the territorial government and the federal share of the same cost-shared programs enjoyed by provinces.

6.2.2 Governmental Institutions of the Territories

6.2.2.1 The Commissioner — Yukon and the N.W.T.

By virtue of section 3 of both the *Yukon Act* and the *Northwest Territories Act*, the Governor in Council appoints the commissioners of both territories as chief executive officers. Before the recent shift toward responsible government in both territories, the commissioners were the pre-eminent governmental forces in the territories. However, since the evolution of the Executive Council in Yukon and the N.W.T., the role of the commissioners has tended to approach more closely that of the lieutenant governors in the provinces.

The Yukon has an Administrator, Florence Whyard, who has the powers of Commissioner in the Commissioner's absence. In the N.W.T., this function is performed by the Deputy Commissioner, Ann Hanson of Iqaluit. Contrary to the Deputy Commissioner's role before 1984, her appointment is part-time and stipendiary only, and her duties are routine. She has no political involvement, and her position is comparable with that of the Yukon's Administrator.

6.2.2.2 Legislative Assembly — Yukon

The Yukon Council, popularly called the Legislative Assembly, comprises 16 elected members (MLAs), seven of whom represent Whitehorse districts. After the general election of February 21, 1989, the New Democratic Party (NDP) maintained its control of the Assembly with nine seats. The Progressive Conservative (PC) Party won seven seats and the Liberal (Lib) Party lost the one seat it won in a 1987 by-election. The four standing committees of the Legislature include the Members' Services Board, the Rules, Elections and Privileges Committee, the Public Accounts Committee and the Statutory Instruments Committee. There are also special committees on constitutional development and privileges.

The Clerk of the Assembly is Patrick Michael. His office provides advice on parliamentary procedure to the Speaker, the Chairperson of the Committee of the Whole and individual members of the Legislative Assembly. Administrative and support services are also provided to the assembly during sessions and to standing and special committees and individual members on a day-to-day basis. As of December 1989, Yukon's MLAs by constituency, were:

William Brewster (PC)	— Kluane
Danny Joe (NDP)	— Tatchun
Bea Firth (PC)	— Whitehorse Riverdale
Margaret Joe (NDP)	— Whitehorse North Centre
Sam Johnston (NDP)	— Campbell
Norma Kassi (NDP)	— Old Crow
Joyce Hayden (NDP)	— Whitehorse South Centre
Dan Lang (PC)	— Whitehorse Porter Creek East
Piers McDonald (NDP) (House Leader)	— Mayo
Maurice Byblow (NDP)	— Faro
Alan Nordling (PC)	— Whitehorse Porter Creek West
Tony Penikett (NDP) (Government Leader)	— Whitehorse West
Willard Phelps (PC)	— Hootalinqua
Doug Phillips (PC)	— Whitehorse Riverdale North
John Devries (PC)	— Watson Lake
Art Webster (NDP)	— Klondike

Speaker: Sam Johnston

6.2.2.3 Legislative Assembly — N.W.T.

The N.W.T. Council, popularly referred to as the Legislative Assembly, consists of 24 elected members. In January 1989, the Assembly consisted of eight Inuit, eight Dene/Metis and eight non-natives. There are no political party affiliations officially in the N.W.T. Assembly.

The Clerk of the Assembly is David Hamilton. There is also a small staff which provides administrative and support services to the members. Simultaneous translation services in Inuktitut and the Dene languages are provided, as necessary, for sessions of the Assembly. This service in French should be provided by 1990. Sessions used to be rotated between Yellowknife and regional centres in an attempt to bring government to the people, but this practice was discontinued in 1986, primarily because of the high cost of travelling.

As of January 1989, the N.W.T. MLAs by constituency, were:

John Ningark	— Natilikmiot
Charlie Crow	— Hudson Bay
Joe Arlooktoo	— Baffin South
Mike Ballantyne (House Leader)	— Yellowknife North
Thomas Butters	— Inuvik
Nellie Cournoyea	— Nunakput
Peter Ernerk	— Aivilik
Titus Allooloo	— Amittuq
Samuel Gargan	— Deh Cho
Don Morin	— Tunedhe
Brian Lewis	— Yellowknife Centre
Jeannie Marie-Jewell	— Slave River
Bruce McLaughlin	— Pine Point
Richard Nerysoo	— Mackenzie Delta
Ipeelee Kilabuk	— Baffin Central
Dennis Patterson (Government Leader)	— Iqaluit
Red Pedersen	— Kitikmeot West
Ludy Pudluk	— High Arctic
Tony Whitford	— Yellowknife South
Nick Sibbeston	— Nahendeh
John Pollard	— Hay River
Stephen Kakfwi	— Sahtu
Henry Zoe	— Rae-Lac La Martre
Gordon Wray	— Kivallivik

Speaker: Richard Nerysoo

6.2.2.4 Executive Council — Yukon

The Yukon's elected Executive Council, established in 1979 under direction of the Minister of Indian Affairs and Northern Development, extended the Executive Committee form of government established in 1970.

The *Yukon Act* still gives executive authority to the Commissioner but the Commissioner must follow the Executive Council's advice on local matters.

The Yukon Executive Council is different from its N.W.T. counterpart; its members are all MLAs from the party with the most seats in the legislature.

Cabinet committees and sub-committees dealing with social and economic policies help the Executive Council make decisions.

The Executive Council Office provides policy analysis and review, research, coordination and administrative support to the offices of the government leader, ministers, commissioner, internal auditor, the public affairs bureau, policy and inter-governmental relations, the bureau of statistics, the land claims secretariat, French and Aboriginal language services and the devolution office.

6.2.2.5 Executive Council — N.W.T.

The Executive Council is the senior decision-making body of the government of the Northwest Territories. The Commissioner continues to be the formal head of government although the Government Leader now chairs the Executive Council. The Council is made up of eight elected Executive members, all of whom are MLAs for various constituencies. One member is chosen as Government Leader and is the deputy chairman of the Executive Council. Each elected Executive member is minister of a department or departments.

Executive members are collectively responsible for decisions on policy and programs, for relations with federal and provincial governments and for the general conduct of government in the N.W.T.

6.2.2.6 The Judicial System in the N.W.T. and Yukon

Both Yukon and the N.W.T. have been granted responsibility for the administration of justice with the exception of criminal prosecutions. The Criminal Code specifies that the Attorney General for Canada is also the Attorney General for the two territories. There is one resident Supreme Court judge in Yukon and two in the N.W.T. as well as territorial courts, magistrates' courts and numerous justices of the peace. Supreme Court judges of the N.W.T. are ex officio members of the Supreme Court of Yukon and vice versa.

The Court of Appeal for Yukon comprises judges of the B.C. Court of Appeal, the Supreme Court judge from Yukon and a Supreme Court judge from the N.W.T. The Court of Appeal for the N.W.T. is composed of judges of the Alberta Court of Appeal, the Supreme Court judge from Yukon and a Supreme Court judge of the N.W.T.

Yukon residents are appointed Justices of the Peace wherever possible and practical. The Council for Yukon Indians administers a native courtworker service under a funding agreement with Yukon and the federal governments.

The Yukon justice department also enforces court orders on spousal and child support through a maintenance enforcement program, and administers a victim-witness program to help people unaccustomed to appearing in court. The justice department has also started a pilot project to combine traditional native values with crime prevention initiatives.

6.2.3 Political Institutions

6.2.3.1 Party System

Although federal elections in the North have long been partisan, the territorial party system is in its infancy. However, party politics have developed in a completely different direction in each territory.

Local party politics in the Yukon began in 1970 when a slate of candidates ran in the territorial election as Liberals. In the 1974 election, candidates from the Liberal and New Democratic parties ran for election, but most elected were independents. The 1978 Yukon territorial election was the first to have candidates from all three major national parties. In the 1985 election, all 16 elected representatives were from the three major parties. The New Democrats won a minority government but achieved a majority 20 months later with a by-election in the Tatchun riding.

Partisan politics and the party system have become a permanent feature in the Yukon; the government operates on the principles of party government found in the rest of Canada.

In the N.W.T., this is not the case. For the most part, southern partisan distinctions have had little relevance to the N.W.T. at the territorial level. Native involvement in territorial politics is and has been more relevant and significant in the N.W.T. than in Yukon. The imperatives of partisan politics have, to a certain extent, clashed with the imperatives of native political culture. In the absence of partisan politics in the Legislative Assembly, legislative alliances have developed along regional, ethnic, philosophical or positional lines.

6.2.3.2 Interest Groups

Like other jurisdictions, Yukon has a number of organized interest groups active in the political process. These organizations present briefs to various inquiries and other forums, take positions and lobby government on various issues of importance to the political and economic development of Yukon. Some of the more important groups are:

Association of Yukon Communities
Council for Yukon Indians
Klondike Placer Miners' Association
Klondike Visitors' Association
Tourism Industry Association of the Yukon
Yukon Chamber of Commerce
Yukon Chamber of Mines
Yukon Conservation Society
Yukon Federation of Labour
Yukon Historical and Museums Association
Yukon Livestock & Agricultural Association
Yukon Outfitters Association
Yukon Status of Women Council
Yukon Trappers Association

There are also many interest groups in the N.W.T., most significant of which are the native organizations which will be discussed in the next section. The N.W.T. Chamber of Mines has been a vocal and articulate supporter of mining exploration and development and the Chamber of Commerce is active in the larger communities in the territory. In the smaller communities, hunters and trappers associations are fairly active. Some of the more important groups are:

N.W.T. Business Council
Yellowknife Chamber of Commerce
N.W.T. Association of Municipalities
N.W.T. Council for the Disabled
N.W.T. Federation of Labour
Ecology North
Nuclear Free North
Tourism Industry Association of the N.W.T.

6.2.3.3 Native Organizations — Yukon

The lack of a land claims treaty has been a major organizing force behind the establishment of native organizations in Yukon. As early as 1902, Chief Jim Boss wrote to the Government of Canada asking for a treaty to protect his people from the effects of the coming of non-natives during the Klondike gold rush. Yet, for many years no treaty was negotiated and the Indian people remained unorganized. In 1958, the Yukon Indian Advancement Association was formed by a group of concerned Indians and non-Indians. One of its major accomplishments was the Skookum Jim Friendship Centre.

In 1969, the Indian band chiefs established the Yukon Native Brotherhood (YNB). When funds became available, the YNB's first objective was to document the needs and aspirations for a Yukon Indian land claims settlement. In 1971, the Yukon Association of Non-Status Indians (YANSI) was formed to represent the interests of Yukon's non-status Indians — that is, those Indians not covered under the *Indian Act*.

In January 1973 the YNB, supported by YANSI, presented the Prime Minister of Canada with a statement of grievances and principles for negotiating a land claim. This historic document was entitled "Together Today for our Children Tomorrow". It was the first time that a group of Canadian people of native ancestry had prepared and presented such a document. Based on the principle that all the Indians of Yukon had the right to develop their lives fully in a society where their economic, cultural and social wishes and needs were capable of being met, the statement outlines aboriginal rights, defines what it means to be Indian and claims the traditional homeland. When the federal government accepted the document as a basis for settlement by negotiation of the land claims of the Yukon Indians, the need arose for an organization founded on the document's principles, an organization which could negotiate with the federal government to settle the claim.

The Council for Yukon Indians (CYI) was established late in 1973 to represent both status and non-status Indians in the negotiation of a joint land claim. At this same point, both YNB and YANSI were occupied with their own separate responsibilities and had neither the time nor the resources to undertake negotiations. In 1980, a historic occasion in the history of Canadian Indian political development took place when the YNB and YANSI rejected the provisions of the *Indian Act* and amalgamated under the name of the Council for Yukon Indians. The CYI assumed all the functions of the two former organizations. It also provides programs related to social housing, legal matters and education.

The executive of the CYI is elected every two years in Yukon-wide elections. The CYI has a 19-member board of directors — 14 chiefs, the chairperson, 3 vice-chairpersons

and one executive elder. All board decisions must be ratified by the 48-member General Assembly which meets approximately four times a year.

As an organization, the CYI has developed expertise in a number of areas, including social and educational policies, economic development, communications and resource mapping, to mention a few. The chairperson of the CYI is Judy Gingell.

6.2.3.4 Native Organizations — N.W.T.

There are four native groups in the N.W.T. today. Each has sought a settlement of land claims and established an organization to pursue that goal. The specifics of land claims will not be addressed here as they have been described in section 5. The organizations and their backgrounds are as follows.

Inuit Tapirisat of Canada (ITC) (The Inuit Brotherhood)

This organization was established in 1971 to provide Inuit with a united voice on matters of northern development and preservation of the Inuit culture. The organization is a federation of six regional affiliates in Quebec, Labrador and the N.W.T.

Inuvialuit Regional Corporation (IRC)

The Inuvialuit Regional Corporation was created as a result of the 1984 Inuvialuit Final Agreement, a land claim settlement in the Mackenzie Delta. The corporation receives settlement lands and financial compensation, and holds 100 per cent of the voting common shares in the development, investment and land corporations established under the Agreement.

Dene Nation

The Indian Brotherhood of the N.W.T. was formed in 1970 by the major Indian bands of the Mackenzie Region. While the original intention of the brotherhood was to oppose proposed changes in the *Indian Act* which would have reduced Treaty rights, the organization quickly shifted its focus to a concern with land claims and political autonomy. Reconstituted in the late 1970s as the Dene Nation, the organization is today an extremely influential and powerful voice for the Indians of the Mackenzie Valley and is mainly engaged in land claim negotiations.

Metis Association of the N.W.T.

The Metis Association was formed as the N.W.T. affiliate of the Native Council of Canada in 1973. The organization had taken an active role in promoting development in the Mackenzie Valley and encouraging the participation of the Metis in development projects. Originally at loggerheads with the Dene Nation, the Metis have now agreed to work with the Dene in seeking a just settlement of land claims in the valley, although differences between the groups continue to exist.

6.2.4 Bureaucracy in the North

In the 1960s, the federal government began a policy of gradual devolution of administrative authority to the territorial councils. This meant that there would have to be a territorial public service to carry out the ordinances and acts of those councils. Since then, there has been a rapid growth of the territorial bureaucracy, as federal public servants transferred to the territorial services with the programs they administered.

6.3 Government Services

6.3.1 Federal Government Services

The federal government provides services in Yukon and the N.W.T. through several departments, agencies and Crown corporations. The function and responsibilities of each are described briefly below.

6.3.1.1 Agriculture Canada (AGR)

Agriculture Canada provides technical advice in the North on agricultural production, soil and vegetation, as well as programs in the area of insects and diseases control.

The Research Branch operates the Yukon Soil Survey office in Whitehorse, which provides information about Yukon soil resources to government agencies and the public. Information on northern agricultural research is available from the Beaverlodge Research Station in Beaverlodge, Alberta.

6.3.1.2 Employment and Immigration Canada (EIC)

The department operates Canada Employment Centres (CECs) in the North and administers unemployment insurance and other federal programs for human resource development, employment and immigration.

It maintains CECs in Yellowknife, Hay River, Inuvik and Iqaluit in the N.W.T., and in Whitehorse, Yukon. There are sub-offices in Fort Simpson, Fort Smith and Rankin Inlet, N.W.T. Branch offices outside Yellowknife serve about 30 smaller settlements. A year-round Canada Immigration Centre operates in Whitehorse and a seasonal office (May to September) in Beaver Creek. The N.W.T. immigration centre is in Yellowknife.

Services include:

- providing information on available jobs;
- recruiting workers, both locally and Canada-wide;
- referring qualified workers to available jobs;
- counselling workers on employment and related matters, including how to look for jobs;
- counselling and other services for women, natives, the disabled and persons with special needs;

- providing special services for students;
- giving aptitude, interest, skill and ability assessments;
- making referrals to training;
- providing mobility and relocation assistance;
- collecting and disseminating labour market information;
- supplying itinerant service to outlying communities;
- supporting community efforts to meet local labour market needs; and
- providing temporary income support to workers between jobs.

An outreach program provides employment-related services to people who cannot fully use CEC services. Typical groups using this service are residents of isolated communities, native people, chronically unemployed persons and individuals who have difficulty entering or re-entering the workforce. In the Yukon, Outreach projects are in Dawson City and Watson Lake.

6.3.1.3 Canada Mortgage and Housing Corporation (CMHC)

CMHC administers programs under the *National Housing Act*, insuring mortgage loans and providing financing to territorial housing corporations and non-profit organizations. It has offices in Whitehorse and Yellowknife.

6.3.1.4 Canada Post Corporation (CPC)

Canada Post Corporation operates 52 post offices and 2 sub post offices in the N.W.T.; and 16 post offices and 2 sub post offices in the Yukon. Canada Post also provides a courtesy bag service for the five N.W.T. communities that do not have regular postal service. Mail from southern Canada is staged at four points: Montreal, for eastern N.W.T.; Winnipeg, for central N.W.T.; Edmonton, for western N.W.T.; and Vancouver, for the Yukon. Seven airlines transport mail both to and within the North. Through better east-west connections in the N.W.T. mail can move within the N.W.T. without reshipping from southern distribution points. Regular delivery service ranges from daily to every six days, depending on community size. The Northern Air Parcel Subsidy provided to Canada Post allows reduced rates for parcels mailed by commercial mailers under contract with Canada Post and destined for places accessible only by air.

6.3.1.5 Canadian Broadcasting Corporation (CBC)

The CBC Northern Service serves the special broadcasting needs of people in the N.W.T., Yukon and northern Quebec, including the Dene, Inuit, Metis and non-natives. The service encourages CBC programming to reflect the North and its people and works with other parts of the CBC to fulfill the CBC mandate.

CBC Northern Service has radio production centres in Inuvik, Yellowknife, Rankin Inlet, Iqaluit and Whitehorse. There is also a radio bureau in Ottawa. There is a television production centre in Yellowknife, and television bureaus in Whitehorse, Iqaluit, Montreal and Ottawa.

6.3.1.6 Canadian National Railways (CN)

CN serves the North through the rail link to Hay River.

6.3.1.7 Canada Oil and Gas Lands Administration (COGLA)

COGLA administers northern oil and gas rights and associated activities on behalf of the Minister of Indian Affairs and Northern Development. The regional office at Yellowknife, N.W.T., carries out administrative and regulatory duties under COGLA's jurisdiction for all federal lands north of 60 degrees.

6.3.1.8 The National Transportation Agency of Canada (NTA)

The NTA's Market Entry and Analysis Branch licenses and regulates services on the Mackenzie River and along the west coast of the Arctic Ocean. The Branch also monitors what economic effects the *National Transportation Act, 1987* has on those who provide and use transportation services in the territories.

6.3.1.9 Communications Canada (COM)

Communications Canada's activities in the North range from developing and regulating communication technologies to assisting artistic and cultural organizations. Offices are located in Whitehorse, Yellowknife and Fort Smith.

6.3.1.10 Supply and Services Canada (SSC)

SSC oversees purchasing, contract administration, cheque issuing, superannuation and asset disposal services to federal government departments and agencies in the Yukon and the N.W.T. Departments in the N.W.T. are served from Edmonton, and those in the Yukon are administered from Whitehorse, for purchasing and contract administration, and from Vancouver for other SSC services.

6.3.1.11 Energy, Mines and Resources Canada (EMR)

The various sectors of EMR carry out several types of research, technological development and administrative work in the Arctic. EMR conducts scientific investigations unique to the Arctic and, through the Polar Continental Shelf Project, provides safe, cost-effective logistics support to researchers working in the region. The Geological Survey of Canada provides geoscientific knowledge, technology and expertise about Canada and its offshore, its mineral and energy resources and the natural conditions that affect land and seabed use. Through the Canada Oil and Gas Lands Administration, it administers and manages oil and gas interests in Hudson Bay and Hudson Strait. The Surveys, Mapping and Remote Sensing Sector provides geodetic, topographic and geographic information and develops and coordinates

a program to produce and use remotely sensed data. It carries out land surveys; produces, maintains and distributes maps. The Mineral and Energy Technology Sector conducts research on steels and other metals exposed to arctic conditions and assists in the development of mineral resources and administers energy conservation programs on energy efficiency and diversity. It also develops and coordinates a research program on energy efficient alternative fuels and renewable technologies.

6.3.1.12 Environment Canada (EC)

The Conservation and Protection Service (C&P) comprises Environmental Protection (EP), the Inland Waters Directorate (IWD) and the Canadian Wildlife Service (CWS). EP ensures the regulatory requirements of the *Canadian Environmental Protection Act* and the pollution prevention requirements of the *Fisheries Act* are enforced. EP district offices are in Whitehorse and Yellowknife and sub-district offices are in Iqaluit and Inuvik. EP also informs and advises INAC, the lead agency for most environmental regulations in the Yukon and N.W.T. IWD conducts studies on surface and ground water, snow, ice and permafrost, and maintains a network of stream-flow stations throughout the North. CWS manages programs on migratory birds, coordinates federal and territorial activities on wildlife programs and surveys, and maintains inventories and conducts biological research in the Arctic.

The Atmospheric Environment Service (AES) provides information, consultation and advice on atmospheric and ice- and sea-state conditions through its observation and communications networks and arctic forecast systems. The Weather Services Directorate provides up-to-date weather and marine information to most large northern communities. AES also operates five networks for data acquisition, the Arctic and Yukon Weather Centres, a centralized analysis and prognosis centre, satellite readout stations, contract stations and scientific support offices. Approximately 60 AES employees are in Yukon and the N.W.T. Weather stations in the N.W.T. are at Resolute, Baker Lake, Coral Harbour, Iqaluit, Cambridge Bay, Alert, Mould Bay*, Eureka*, Fort Smith, Inuvik, Hay River, Cape Parry (a peninsula north of Paulatuk), Reliance, Norman Wells and Yellowknife and in Yukon at Whitehorse.

Canadian Parks Service (CPS) takes the lead role in preserving Canada's natural and cultural heritage. Parks are managed to encourage the public to understand, appreciate and enjoy these resources so they remain unspoiled.

6.3.1.13 External Affairs and International Trade Canada (EAITC)

EAITC provides advice on matters with foreign policy implications, coordinates matters of international law and policy concerning the Arctic, and negotiates with countries proposing activities in the North.

6.3.1.14 Federal Environmental Assessment Review Office (FEARO)

FEARO oversees the Environmental Assessment and Review Process (EARP) for the Environment Minister. It provides advice and guidelines for departments conducting initial assessments to determine the environmental effects of public or private sector proposals for which departments have decision-making authority. Independent panels are appointed by the Minister to publicly review proposals when a proposal may have unknown or potentially significant adverse environmental effects, or public concern otherwise warrants such a review. A panel holds public meetings near the proposed site and submits its report containing recommendations to the Minister of Environment and the initiating department. The report is made public.

6.3.1.15 Fisheries and Oceans Canada (DFO)

DFO is responsible for research in fisheries management and oceanography. Fishery officers enforce regulations, inspect operations and perform management functions. Oceanographic investigations, conducted under the *Arctic Waters Pollution Act* and the *Ocean Dumping Control Act*, result in advice to other government departments or agencies. The Canadian Hydrographic Service conducts surveys; produces, distributes and maintains nautical charts; and provides sailing directions and tide tables for northern regions.

6.3.1.16 Health and Welfare Canada (HWC)

The role of the Medical Services Branch in the Yukon Territory is equivalent to that of a provincial health department. The responsibility of MSB is to provide and deliver health care programs to territorial residents and to operate the Whitehorse General Hospital. The costs are shared by the Branch and the Yukon Territorial Government. MSB is also responsible for the provision of non-insured health benefits to status Indian and Inuit people who reside in Yukon.

The Branch provides acute-treatment care through the Whitehorse General Hospital, nursing stations, health stations and clinics.

In the N.W.T., the territorial department of health assumed full responsibility for the delivery of health services from MSB effective April 1, 1988. MSB retains the responsibility for the delivery of non-insured health benefits to eligible native people, but contracts with the N.W.T. Government to deliver these benefits.

The two territorial governments operate hospital and health care insurance plans.

The Social Services Programs Branch, through the Canada Assistance Plan, contributes 50 per cent of territorial and municipal public assistance and welfare service expenditures, and makes consulting services available.

For the N.W.T., the Edmonton office provides other Health and Welfare Canada services, such as the Canada Pension Plan, family allowances and Old Age Security.

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* *Mould Bay, on Prince Patrick Island and Eureka, on Ellesmere Island are scientific research stations which are administered by Environment Canada.*

6.3.1.17 Indian and Northern Affairs Canada (INAC)

INAC carries out its northern responsibilities through two major programs: the Indian and Inuit Affairs Program, and the Northern Affairs Program.

The Indian and Inuit Affairs Program is divided into four major areas: self-government, economic development, lands, revenues and trusts and Indian services. Indian services include social development, capital facilities, community services and band management. The program services are only for status Indians, those registered or entitled to be registered as Indians according to the *Indian Act*, as amended by Bill C-31 in June 1985. Territorial governments provide services to Inuit.

The Northern Affairs Program has three branches: Constitutional Development and Strategic Planning, Natural Resources and Economic Development, and Comprehensive Claims.

The Constitutional Development and Strategic Planning Branch develops and coordinates policies for the department's activities in the North. It collects, interprets and disseminates information on federal and territorial activities and expenditures related to Canada's North, and negotiates federal-territorial fiscal arrangements. It also administers social and cultural programs; plans, coordinates and supports northern science; and is the focal point for strategic planning on constitutional or economic development, and program transfers north of 60°.

The Natural Resources and Economic Development Branch develops and recommends policies, strategies, plans and regulations for managing renewable resources and protecting the environment. The branch also:

- carries out an applied research program;
- administers surface rights on Crown lands;
- manages and protects inland and offshore waters;
- provides forest protection; (Yukon only)
- manages forest resources; (Yukon only)
- conducts environmental assessments of resource development proposals;
- manages the federal government's proprietary interest in minerals, including oil and gas;
- defines mineral potential;
- advises on developing mineral policy and legislation; and
- collects mineral royalties.

The Comprehensive Claims Branch coordinates claims assessment and negotiations on accepted claims; provides financial resources for claimants' research, development and negotiation of claims; and coordinates the financial arrangements and agreements according to the federal governments' obligations for comprehensive claims.

INAC regional offices deliver programs and assist with developing policy and coordinating program transfers. They also provide advice and training to the community and play a vital role in negotiations on major issues, such as land claims, social and education programs, resource development and environmental management. The Northern Affairs Program has regional offices in Whitehorse and Yellowknife, and district offices in eight Yukon communities and seven N.W.T. centres.

6.3.1.18 Industry, Science and Technology Canada (ISTC)

Industry, Science and Technology Canada was created as the result of the amalgamation of the Ministry of State for Science and Technology (MOSST) and the Department of Regional Industrial Expansion (DRIE). Since its inception in 1987, ISTC has operated under the auspices of the combined mandates of MOSST and DRIE. ISTC has been promoting and assisting industry, small business, aboriginal economic development, technology enhancement and commercially exploitable scientific development in Canada. ISTC has worked, in conjunction with External Affairs and International Trade Canada (EAITC), to assist in locating international markets for Canadian goods and services as well as to promote and support the Canadian tourism industry.

ISTC is committed to strengthening the economic well-being of the Yukon Territory and the Northwest Territories. Though ISTC has moved toward the provision of more business services and intelligence, direct funding is still provided for through economic development programs such as the Canadian Aboriginal Economic Development Strategy and the Economic Development strategy. Through such measures ISTC is expediting economic independence for these Territories.

6.3.1.19 Department of Justice (DOJ)

The Minister of Justice appoints judges to the territorial Supreme Courts, while the department, with offices in Whitehorse and Yellowknife, directs court proceedings on behalf of the Crown under the *Criminal Code*, other federal statutes and territorial ordinances. As well, the department, through the *Department of Justice Act*, provides legal services to other federal departments.

6.3.1.20 Labour Canada (LAB)

Labour Canada administers the *Canada Labour Code* and is responsible in the federal jurisdiction for industrial standards (conditions of work, minimum wages, hours of work); occupational health and safety of employees and industrial relations (collective bargaining, labour-management relations).

The department maintains an office in Whitehorse to serve both Yukon and the N.W.T.

6.3.1.21 National Defence (DND)

DND safeguards Canada's sovereignty and independence. In the North, DND protects Canada against threats and challenges to its territory and contributes to security arrangements with NORAD (North American Aerospace Defence) and NATO (North Atlantic Treaty Organization). DND supplements and supports civil departments and agencies in the North.

As of February 1989, the following Canadian Forces units were in Yukon and the N.W.T.: Northern

Region Headquarters — Yellowknife Detachment; 440 Transport and Rescue Squadron Detachment — Whitehorse; Canadian Forces Station — Alert; Canadian Forces Base, Greenwood Detachment — Iqaluit; 764 Communication Squadron Detachment — Iqaluit.

Air defence radar sites in the Arctic are the North Warning Long-Range Radar Sites, maintained and operated under contract by Canada, and existing Distant Early Warning (DEW) Line sites, maintained and operated under contract by the U.S. Air Force.

North Warning Long Range	*DEW Line Auxiliary Sites*
Radar Sites	
Cape Parry	Komakuk Beach
Cambridge Bay	Tuktoyaktuk
Hall Beach	Nicholson Peninsula
Cape Dyer	Clinton Point
Saglek	Cape Young
Brevoort	Byron Bay
Cartwright	Jenny Lind Island
Shingle Point	Gladman Point
Lady Franklin	Pelly Bay
Shepherd Bay	Mackar Inlet
Dewar Lake	Longstaff Bluff
	Cape Hooper
	Broughton Island

6.3.1.22 National Energy Board (NEB)

- NEB regulates the licensing of oil, gas and electricity exports;
- certifies development projects for interprovincial and international pipelines;
- determines tolls to be charged on federal oil and gas pipelines;
- monitors the construction and operation of federal pipelines to ensure all facilities are developed safely and without harm to the environment; and
- advises government on developing and using energy resources.

6.3.1.23 National Film Board (NFB)

NFB produces and distributes Canadian films and videos that reflect Canada's social and cultural views. Productions reflect Canada's diverse pluralistic society, and are produced across the country. Many NFB productions promote environmental awareness and social responsibility, and focus on Canada's North, and northern peoples and their activities.

6.3.1.24 National Museum of Natural Sciences (NMNS) and Canadian Museum of Civilization (CMC)

The National Museum of Natural Sciences contributes to the knowledge of Canada's natural history. The Museum maintains collections and researches geology and paleontology, as well as more recent plants and animals. The Museum has a long history of working in Yukon and the N.W.T. and has developed considerable expertise, particularly in Arctic plants, bird and mammal behaviour, and the Pleistocene vertebrate fossils. The Museum develops permanent, temporary and travelling exhibits on the North, and publishes related books and educational materials.

The Canadian Museum of Civilization (formerly National Museum of Man) has much experience researching in Canada's North; it has worked on rescue archaeology and urgent ethnology programs for most of this century. The Museum also returns to communities with small travelling exhibitions and archaeologists who worked on local excavations to show slides and discuss research results. Publications from this research are sent to the community so that residents will know and take pride in their history.

6.3.1.25 National Research Council (NRC)

NRC researches: sea ice; offshore structures and icebreakers; magnetic phenomena; ionosphere conditions and cosmic rays; and structural and thermal performance of roads, airstrips, pipelines, building foundations and other structures on permafrost.

6.3.1.26 Northern Pipeline Agency

This agency will oversee the regulation of the Alaska Highway Gas Pipeline to ensure its construction and operation provide maximum economic, industrial and energy benefits for Canada and that social and environmental impacts are kept to a minimum.

6.3. .27 Public Service Commission of Canada (PSC)

PSC administers the *Public Service Employment Act* by developing and administering standards for selecting federal public service candidates, by providing mechanisms for appointments challenged violating the merit principle and by auditing staffing authority. It also administers the Act for the political activities of public servants, ensures all Canadians have equal access to the public service, conducts training and provides advice on training and development programs, and investigates discriminatory treatment in the public service.

PSC has two offices of native employment at its district offices in Yellowknife and Whitehorse.

6.3.1.28 Public Works Canada (DPW)

DPW provides many realty management, engineering, architectural and construction services. In the North, DPW provides housing for federal government employees, keeps water transportation routes navigable, and interacts with territorial jurisdictions in designing, building and maintaining highways.

6.3.1.29 Revenue Canada — Customs and Excise

This department controls the international movement of goods, persons and conveyances entering and leaving Canada. Customs serves travellers and importers; Excise deals with licenced manufacturers and wholesalers. There are nine main Acts affecting Customs and Excise:

the Department of National Revenue Act which establishes the Department, and the *Customs Act, Special Import Measures Act, Customs Tariff Act, Excise Tax, Excise Tax Act, Customs and Excise Offshore Application Act, Duties Relief Act,* and the *Softwood Lumber Products Export Charge Act.* The Department is also involved with about sixty other Acts of Parliament on behalf of other government departments.

Customs offices are in Yukon at Whitehorse, Beaver Creek, Dawson City, Little Gold (which is open in the summer only and located on the Dawson Boundary Road west of Dawson City), Pleasant Camp (which is located on the Haines Road leading into Haines, Alaska), Fraser (which is located on the highway north of Skagway, Alaska) and Old Crow. In the N.W.T., offices are in Iqaluit, Yellowknife and Tuktoyaktuk (summer only).

6.3.1.30 Royal Canadian Mounted Police (RCMP)

RCMP police the territories under contract to the territorial governments. The N.W.T. headquarters are in Yellowknife ("G" Division), and the Yukon headquarters are in Whitehorse ("M" Division).

N.W.T. has four sub-divisions (Iqaluit, Inuvik, Yellowknife and Hay River) and 39 detachments. Four satellite offices are in Wrigley, Lac La Martre, Holman and Pelly Bay. There are two highway patrols (Hay River and Yellowknife) and five plainclothes units. In the N.W.T., 12 settlements are served by regular patrol services. In Yukon, 13 detachments serve communities outside Whitehorse. Both Divisions are fully equipped with a variety of support services for effective policing, including Plain Clothes Units and Highway Patrol Units at Yellowknife, Hay River and Whitehorse.

6.3.1.31 Statistics Canada (SC)

Statistics Canada maintains an ongoing program of consultation and liaison with the governments of Yukon and the N.W.T. and offers technical support for the statistical activities these governments conduct.

6.3.1.32 Secretary of State (SOS)

The Department of Secretary of State of Canada seeks to foster a sense of belonging to Canada, assists Canadians in understanding and celebrating their identity and encourages full participation by all Canadians in all aspects of our society. Its programs and policies include: Multiculturalism, Citizenship, Official Languages and Translation and Education Support.

6.3.1.33 Transport Canada (TC)

Transport Canada is responsible for a complex set of programs and services to ensure the safety, efficiency and effectiveness of marine, air and surface transportation across Canada and in the North.

Departmental headquarters in Ottawa are comprised of the national executives of four operational groups responsible for marine, airports, aviation and surface transportation, and groups responsible for policy and coordination, review and central services. Several Crown corporations report to Parliament through the Minister of Transport.

The Canadian Coast Guard, part of the *Marine Group*, maintains a high profile in the North nearly year-round. Icebreakers support Canadian and U.S. sealifts of fuel and supplies to communities, government and industrial sites in the Eastern and Western Arctic. The coast guard also operates coastal radio stations, provides ship-safety inspections and ice advisory and ship-monitoring services, enforces special rules that apply to Arctic ships, and provides emergency response for pollution incidents.

The chairman of Canarctic Shipping Co. Ltd. is a coast guard official. The company owns and operates the MV *Arctic*, a Canadian-designed and -built bulk carrier that ships ore and petroleum from the Arctic to Antwerp, Belgium, and Nordenham, Germany.

The *Airports Group* is responsible for the safe, secure and efficient operation of the national airport system. The group owns or contributes to the operation of 222 land aerodromes in Canada, including 21 in the Northwest Territories and three in the Yukon.

The *Aviation Group* develops and manages all operational and regulatory activities in support of aeronautics, including the national air navigation system. It promotes high standards of aviation safety, develops, installs and operates air traffic control systems and enforces technical and safety regulations. "Operation Checkstop," a special enforcement program to ensure northern air carriers comply with federal air regulations, is being conducted by Aviation Group staff from Edmonton. The safety program, aimed at the prevention of aircraft overloading, is in addition to the group's normal schedule of air-carrier inspections and assessments of pilots' proficiency.

The *Surface Group* develops, implements and monitors policies and programs for road safety, motor vehicle regulation, the transportation and dangerous goods and railway safety. The group also is responsible for emergency plans and procedures for surface transportation during national crises.

The Ottawa-based *Policy and Coordination Group* is responsible for liaison with other governments and industry as well as the department's relations with other nations. It also plans, develops, implements and monitors long- and short-term corporate policy and programs, including research and development. The group is responsible for economic analysis and the planning and management of cost-shared or subsidized programs such as regional development subagreements on transportation and highways agreements. The group assisted in the development of new federal hours-of-service regulations to control the level of fatigue among commercial drivers on the road. The national regulations were implemented in the Northwest Territories and Yukon during the summer of 1990.

6.3.1.34 Veterans Affairs Canada (VAC)

This department provides health care, financial assistance and counselling to eligible veterans and their dependants. Veterans in the Yukon should contact the

regional office in Vancouver; veterans in the N.W.T. should contact the regional office in Winnipeg.

6.3.2 Yukon

6.3.2.1 General

The responsibilities of the territorial government are administered by a number of departments. They are listed below with a brief outline of their functions.

6.3.2.2 Public Service Commission

The Commission is concerned with all employment matters relating to the Yukon government. Among its responsibilities are recruitment and training, internal labour relations, employee compensation, pay assessment, job evaluations and employee records.

6.3.2.3 Education

This department is responsible for the administration of Yukon's public schools, adult institutional training, apprenticeship, trades certification, industrial training, post-secondary student financing, human resource planning and employment development programs.

6.3.2.4 Finance

The financial operations, accounting services, revenue and taxation and financial management of the Government of Yukon are handled by this department.

6.3.2.5 Government Services

This department includes the following branches: Property Administration, Supply Services; Systems and Computing Services and Public Works. The department coordinates general service agencies used by various other Yukon government departments.

6.3.2.6 Health and Human Resources

Health services, alcohol and drug services, and vocational rehabilitation services are provided by Health and Human Resources. Special programs of note include child welfare, day care licensing and subsidy programs, youth services, services to seniors, community development, and speech pathology/audiology.

6.3.2.7 Community and Transportation Services

The Highways Branch of the department is responsible for the maintenance, construction and reconstruction of Yukon highways, and for provision of mechanical services. The Airports Branch maintains and in some cases operates Arctic "B" and "C" airports for the Yukon government and for federal departments. Some 20 emergency landing strips are also maintained. The Transport Services Branch administers motor vehicles and highway weigh stations and provides support service to the Motor Transport Board which regulates highway transportation.

Community Affairs has the responsibility for community and municipal services, lands, protective services, property assessments and services, arts, sports and recreation.

6.3.2.8 Executive Council Office

The Executive Council office provides support to Cabinet, coordinates the agenda for Cabinet and related committees and carries out an analysis and review of all Cabinet submissions and intergovernmental agreements. Intergovernmental Relations, the Public Affairs Bureau, the Bureau of Statistics, the Internal Audit Bureau, the French and Aboriginal Language Services Bureau, and the Federal Relations office in Ottawa come under the administration of this department.

6.3.2.9 Justice

The department provides or has responsibility for: legal services, land titles, coroner duties, legislative counsel, courts and administrative services, legal aid, territorial court, sheriff's office, supreme court of Yukon, corrections and adult probation services. It also regulates consumer services, corporate affairs, labour services and Yukon utilities. It has special programs on consumer and metric information, occupational health and safety, employment standards and fair wages.

6.3.2.10 Tourism

This department is responsible for tourism marketing and development and the Heritage Branch.

6.3.2.11 Renewable Resources

This department runs its programs through five branches: Administration; Agriculture; Fish and Wildlife; Parks, Resources and Regional Planning; and Policy and Planning.

6.3.2.12 Economic Development: Mines and Small Business

This department's four branches are Administration, Planning and Research, Small Business, and Energy and Mines.

6.3.2.13 Other Yukon Government Agencies

As well as departments, other government agencies include the Workers' Compensation Board, the Yukon Liquor Corporation, the Yukon Development Corporation, the Yukon Energy Corporation, the Yukon Housing Corporation and the Women's Directorate.

6.3.3 Northwest Territories

6.3.3.1 General

The Government of the N.W.T. (GNWT) administers its responsibilities through departments in five regions (Fort Smith, Inuvik, Kitikmeot, Keewatin and Baffin). See Figure 3-1. These departments and their functions are

listed below. There are also secretariats to the Financial Management Board, to the Executive Council and to the Aboriginal Rights and Constitutional Development Office.

6.3.3.2 Culture and Communications

This department is concerned with implementing an information program for northerners. The department is emphasising aboriginal languages and establishing French language services, including translation, for all GNWT departments and agencies. The department is also responsible for the museum program and library services.

6.3.3.3 Economic Development and Tourism

This department has the responsibility of developing the economic resources of the N.W.T. by encouraging small businesses. It plans and establishes programs to promote tourism and to encourage the marketing and sale of goods produced in the territory.

The department is involved in the planning and establishment of territorial parks and recreational facilities to assist in the development of the tourist industry.

Together with the federal government, the Department administers various small business loans and grants. In particular, it contributes to the federal-territorial Economic Development Agreement.

6.3.3.4 Education

The department has full responsibility for education in the N.W.T. The department develops curricula, trains and places teachers and oversees school facilities being built.

One of the more important tasks of the department in recent years has been the development of teaching materials and curricular options in the native languages.

In the spirit of decentralization and devolution in the N.W.T., the Department of Education has been fostering the development of skills in the communities which will ultimately result in the transfer of the department's current responsibilities to locally elected school boards.

6.3.3.5 Energy, Mines and Petroleum Resources

This department is involved in northern oil, gas and mineral resources. It has a major role in negotiating the final agreement on the Northern Accord, which will give the territorial government jurisdiction over some aspects of managing oil and gas resources.

6.3.3.6 Finance

The department through its four divisions (Administration, Treasury, Comptrollership and Fiscal policy) has responsibility for overall financial administration for the government. It provides direction in financial management and financial services in support of government operations. Most of the N.W.T. government's budget is funded under a formula financing agreement with the Government of Canada. (See Section 6.2.1.1).

6.3.3.7 Government Services

This department supports other departments in purchasing and managing supplies, and in communications and computer-related services. The department also administers the Liquor Commission and the Liquor Licensing Board, and distributes petroleum products to more than 45 communities not served by the private sector. The N.W.T. Housing Corporation aims to provide suitable housing to N.W.T. residents at reasonable costs. Specific programs include constructing low-rent accommodation and accommodation for single persons and senior citizens, and administering the Homeownership Assistance Program and rental-purchase plans.

6.3.3.8 Health

This department administers health promotion, family life education, a health training and nursery program, physician recruitment, medical transportation, medical services, territorial hospital insurance services, hospitals and home care programs.

6.3.3.9 Justice

The objectives of this department are to supervise the administration of justice in the N.W.T. and to oversee the enforcement and implementation of territorial acts. The department has several divisions including: policy and planning, constitutional, legislation, legal, court services, and land titles and legal registries.

6.3.3.10 Municipal and Community Affairs

This department's prime objective is the development of political and social awareness and the fostering of the skills of democratic politics at the community level in the N.W.T. It consists of the following divisions:

— *Municipal Affairs Division*:

Objectives focus on municipal inspection and guidance, training and development, new municipal and community legislation, the provision of assessment service for more effective and efficient management by community governments.

— *Lands Division*:

Processes the approval of applications and monitors the use of "Commissioner's land" (land relinquished to the GNWT by the federal government.)

— *Surveys and Mapping Division*:

Provides aerial photography and mapping services to provide current information on communities for planning, map updates and general information. It also conducts legal surveys to facilitate land disposition by providing a legal definition of land parcels on the ground.

— *Sport and Recreation Division*:

Administers the construction of sport and recreation facilities and assists in the preparation and training of N.W.T. athletes competing in local, national and international sports.

— *Community Works and Planning*:

Administers subsidy programs for maintaining community water and sewer infrastructure and is responsible for a community works training program developed to assist local councils and their administrations with the ongoing operation and maintenance of their roads, buildings, mobile equipment and water/sewer facilities.

— *Community Planning Division*:

Provides financial and technical assistance to communities in the preparation and completion of community plans and zoning by laws. It provides funding and training for planning and land administrators hired by local councils, and produces training packages for municipal staff. It also oversees the development of housing lots.

6.3.3.11 Personnel

The Department of Personnel is responsible for planning and coordinating personnel management within the public service of the Government of the Northwest Territories. Staff development and training is an important program in this department. Affirmative action programs for native people, women and the handicapped are also a high priority.

6.3.3.12 Public Works

This department is responsible for designing, building, operating and maintaining all the buildings and works required by the Government of the Northwest Territories, including heavy construction equipment.

6.3.3.13 Renewable Resources

This department brings together all territorial government programs related to the cultural and economic traditions of the native way of life in the N.W.T. The responsibilities include fish, wildlife, forestry management and fire suppression. It is also responsible for land management and environmental protection on those lands which are under territorial administration. One important feature of the programs of this department is hiring native Northerners and utilizing, where possible, the skills and experience of the residents of the communities of the N.W.T.

6.3.3.14 Safety and Public Services

This department monitors lottery licensing, resolves disputes between landlords and tenants, and collects statistical data. It also oversees consumer services and is responsible for the Labour Standards Board, the Office of the Fire Marshal, and the Mine Occupational Health and Safety Board.

6.3.3.15 Social Services

This department provides family and children's services; alcohol, drug and community mental health services; and community and family support services.

6.3.3.16 Transportation

This department builds and maintains inter-territorial highways, maintains Arctic "B" and "C" airports* and northern marine facilities, and oversees ferry operation. The department also runs the motor vehicle registry and develops long-term transportation policy.

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* *An Arctic "B" airport has a 5,000 foot (1,524 m) runway; an Arctic "C" airport has a 3,000 foot (914 m) runway.*

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7.0 Renewable Resources

7.1 Water

7.1.1 General

Flying over Yukon or Northwest Territories during the summer leaves the impression of countless lakes, representing a vast resource of fresh water. Indeed, it has been estimated that about half of Canada's reserves of water lie north of 60°N latitude. In the N.W.T. the amount is huge, but much of it is static. Losses are low and the rate at which reserves are replenished is also low.

Low losses are the direct result of low temperatures. Permafrost underlies much of the area and this limits downward percolation of surface water. At the same time, low temperatures result in low evaporation and low rates of growth of vegetation, and hence low losses due to evapotranspiration.*

Reserves are replenished slowly because precipitation is low over most of the area. In fact, those parts of the drainage basins of the major rivers lying south of the Northwest Territories boundaries contribute a disproportionate share of the flow.

There are many river systems in Yukon and the N.W.T. The main ones are the Yukon in the southwestern part of Yukon, and the Mackenzie, in the western part of the N.W.T.

East of the Mackenzie River drainage basin a number of smaller rivers, including the Coppermine, drain directly into the Arctic Ocean. In the District of Keewatin, rivers run southeast into Hudson Bay from the eastern portion of the district. Other rivers empty into the gulfs on the southern edge of the Arctic Ocean. Although the Back and Thelon are major rivers, neither approaches the size or importance of the Mackenzie or the Yukon rivers.

7.1.1.1 Yukon River

The Yukon River drains an area of 264,000 km^2 above Dawson. The basin includes the Atlin area of northern British Columbia and much of southern Yukon.

The Yukon River at Dawson has a mean annual flow (1945-80) of 2,210 m^3/s. Monthly mean flows vary from a low in March of 427 m^3/s to a high in June of 5,880 m^3/s. Over the period 1945-80 the maximum monthly flow was recorded as 12,200 m^3/s, in June 1964, and the minimum was 185 m^3/s, which occurred in February 1951. The principal tributaries of the Yukon River are the Teslin, the Pelly, the White, and the Stewart.

Prior to the construction of the Whitehorse/Dawson highway, the Yukon River was essential for transportation. Sightseeing excursions are now the major commercial water transportation users on the Yukon River.

7.1.1.2 Mackenzie River

In the N.W.T., the Mackenzie River drains an area of some 804,200 km^2, which is about 45 per cent of the total Mackenzie River Basin. Of the remaining portion, almost half is in Alberta and a little over a quarter in British Columbia, with the remaining quarter divided about equally between Saskatchewan and Yukon.

The Mackenzie River carries the water of Great Slave Lake to the Arctic, a distance of about 1,722 km. At the gauging station closest to Great Slave Lake, the mean annual flow averaged over the period 1961-78 was 6,820 m^3/s. In the same period, the minimum mean monthly flow occurred during March, with a flow of 1,820 m^3/s and the maximum in July of 7,160 m^3/s. The river is braided at its mouth and, at the last gauging station above the Delta at Arctic Red River, has a mean flow of 9,070 m^3/s (1973-82 data), with a minimum mean of 3,400 m^3/s occurring in March and maximum mean of 21,500 m^3/s in June. The major tributary of the Mackenzie is the Liard, which has a mean annual flow (1973-82 data) of 2,420 m^3/s. Other streams which contribute to the flow are the Arctic Red, Peel and Great Bear rivers.

The river is navigable along its entire length during the ice-free season. The season does not advance uniformly from south to north. The first break typically occurs about May 5 in the middle section, due to the high run-off in the drainage basin of the Liard. Break-up is delayed upstream due to the stabilizing effect of Great Slave Lake, while downstream from about Fort Good Hope, disruption of flow by upstream ice jams and lack of major tributaries holds ice for another two weeks. The river is not usually clear of ice as far downstream as Tuktoyaktuk until the end of June. Navigation in the upstream section begins about mid-June. Freeze-up occurs around October 12 in Aklavik and moves steadily upstream, reaching Fort Simpson by about November 15. However, shipping is related to ice-free conditions at the mouth and as a result the navigation season ends in mid-October.

Although the river is considered to be navigable over its full length there are five sections where channels may be too shallow to accommodate fully loaded barges, particularly during seasons of low water flow. The first is at the entrance to the river from Great Slave Lake and extends downstream for about 28 km. The Providence Rapids, which extend for about 17 km starting at km 60, the Green Islands Rapids (km 298 to 330), the Sans Sault Rapids (km 1,015 to 1,028) and the Rampart Rapids (km 1,080 to 1,085) are also troublesome at times. In the rapids sections, after spring high water has receded, it is usually necessary to break tows and relay barges through the shallow stretches.

7.1.2 Government Controls and Regulations

The *Northern Inland Waters Act* is administered by DIAND. The Act set up the Yukon and the N.W.T. water boards, which licence water use in each territory. These boards which may have up to nine members are made up of nominees of the three federal departments most

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* *Evapotranspiration involves the combined losses of moisture by evaporation and transpiration over a given area. (Transpiration is the loss of water from leaf and stem tissues of growing vegetation.)*

directly concerned with the management of water — Indian Affairs and Northern Development, Environment, and Health and Welfare — and at least three persons named by the Commissioner in Council of each territory. The Minister of DIAND has discretionary authority for filling three other positions. The objectives of the boards are, "to provide for the conservation, development and utilization of the water resources" of the territories.

Regulations under the Act define geographical water management areas in the N.W.T. and Yukon and provide for a number of classes of use, including agricultural, conservation, industrial purposes, municipal purposes, power generation, river improvement and storage purposes. Licences are required for many uses. However, domestic use by people owning or occupying lands adjacent to waters is excluded. Water uses associated with emergency fire and flood control are also excluded categories.

The *Arctic Waters Pollution Prevention Act* applies to waters adjacent to the mainland and islands of the Arctic. It is concerned primarily with the prevention of pollution. It controls both shipping and non-shipping activities in the Arctic seas. This statute is administered by the Department of Indian Affairs and Northern Development for non-shipping activities in waters located north of 60° and excluding Hudson Bay and Hudson Strait. The Department of Energy, Mines and Resources is responsible for non-shipping activities in Hudson Bay and Hudson Strait. Finally, the shipping sections of this legislation are under the responsibility of the Department of Transport (Canadian Coast Guard). Regulations made under the Act exempt the deposit of waste permitted under the public health acts of the Northwest Territories and where applicable under the *Oil and Gas Production and Conservation Act*, the *Territorial Lands Act* or the *Public Land Grants Act*.

7.1.3 Hydroelectric Power Generation

The rivers of Yukon and the N.W.T. have considerable potential for electrical energy generation. As yet, only a small fraction is developed, due, primarily, to the low electrical demand in the North and to the high cost of construction. Within the two territories there are ten hydroelectric installations. The installed capacity is small by southern standards, ranging from 0.65 MW to 40 MW. (See Table 7-1).

7.2 Forestry

7.2.1 General

The forests north of 60° remain mostly unexploited with regard to timber production. It is estimated that 700 million cubic metres of marketable timber is located on 209,000 km^2 of productive forest land. About 40 per cent is in Yukon, the remainder in the Mackenzie District of the N.W.T., where the Liard Valley has the greatest harvesting potential. Because the forests north of 60° occur over a large area but in relatively small patches, accurate figures on quantity are difficult to obtain. Information on the northern forests is being evaluated by sampling the more accessible stands and by interpreting aerial photography and Landsat imagery.

Forests provide building materials and employment in logging and sawmilling. They are also valuable as a source of fuel and as a recreational area, as well as habitat for wildlife from which the native people obtain meat and fur. Watershed protection and erosion control are other important benefits.

Recent developments in timber harvesting methods, combined with increasing demand for forest products, have stimulated forest industry interest in the North. With a number of new firms already established, the prospect of commercially viable, forest products operations appears likely. These increasing demands are expected to result in improved quality of northern forest products and to create a need for better managed forests and an efficient forest industry north of 60°.

In order to ensure proper management of the forest resource and provide adequate timber supplies to meet large capital investments by industry, procedures are being developed for the allocation of cutting rights over extended time periods of up to ten years, with one such agreement already in place in Yukon.

7.2.2 Administration

Negotiations began in September of 1985 to transfer Northern Affairs Program's responsibility for forestry and fire management to the Government of the Northwest Territories. Both programs were transferred to the Territorial government on April 1, 1987. The forest resources program in the N.W.T. region is responsible for the implementation of territorial timber regulations. It also oversees the cutting and removal of timber on territorial lands.

The region's fire program is responsible for fire prevention north of 60°, including pre-suppression, suppression and detection programs in the western Arctic.

Implementation of departmental policy in Yukon is the responsibility of the Forestry Division of the Northern Affairs Program with headquarters in Whitehorse. In the N.W.T., the corresponding headquarters of the Government of the N.W.T. is in Yellowknife. There is also a branch office at Fort Smith which has responsibility for the fire control program in the N.W.T.

Management of forest resources was established in the 1940s by the Yukon Forest Service and the Mackenzie Forest Service primarily as forest protection and fire suppression units. General improvements carried out over the years have led to the present modern, relatively well-equipped organization.

Forest management offices have been established in each of the various administrative districts in both Yukon and the N.W.T. Depending on the size of an administrative district or area, the permanent staff might include a regional manager of forest resources, a forest management officer, a fire management officer, clerks and radio operators. In addition, summer seasonal personnel, initial attack crews, airtankers, and lookout staff are positioned at strategic points during the fire season.

7.2.3 The Forests

The treed area of the N.W.T. and Yukon falls within the Boreal Forest Region described by J.S. Rowe in *Forest Regions of Canada*. Figure 7-1 shows the Boreal Forest divided into two parts: a southern part, which is predominantly forest, and a northern part, which is a mixture of forest and barrens. Rowe's publication gives a further breakdown into several forest districts, each of which is described in detail.

The Boreal Forest consists primarily of open stands of slow-growing black and white spruce and a ground cover of lichens and/or mosses, which becomes quite dense as the stands age. This forest is interspersed with many treeless bogs which are often fringed by larch and by occasional dense, tall forest stands. In the southern portion of the N.W.T., jack pine is often found on sandy soils and some uplands. The common deciduous trees, prominent following fire, include trembling aspen, balsam poplar and white birch. To the west of the Mackenzie River, lodgepole pine covering extensive areas and Alaska birch are found.

The northern limit of tree growth is called the tree line. Its position is determined mainly by climate. The average temperature for July must reach at least 10°C for trees to grow. Soils also play an important role. South of the tree line, the absence of trees usually reflects poor soil conditions. Stands of black spruce can occur on permafrost. Besides the northern Arctic tree line, there is also an alpine tree line at about 1,000 m above sea level, or lower to the north.

Identification of tree species is often difficult in the North. Typical western species mix with typical eastern species to form hybrids and intermediate forms. Examples are: lodgepole pine and jack pine, black cottonwood and balsam poplar and Alaska birch and white birch. The spruces found in the North also differ slightly from the same species found to the south and east.

7.2.4 Timber Harvesting and Regulation

White spruce is the most useful species, and is especially favoured for lumber and piling. The best stands are found on the alluvial flats of rivers, where excellent growing conditions and natural fire protection have allowed trees to live for more than 150 years and to reach sizes which would be considered large even in southern parts of Canada. It is not uncommon to find spruce over 60 cm in diameter and 30 m tall along the Lower Slave River in Mackenzie District or on the Liard River in Yukon and the N.W.T. The volume of some white spruce stands can be up to 400 m^3/ha.

Pine (both jack and lodgepole) cover thousands of square kilometres north of 60°. Individual trees seldom exceed 35 cm in diameter. However the wood is used for lumber, mine timbers, piling and fuel. It is possible that pine and spruce trees may occur in sufficient volumes to maintain a pulp mill on the Liard River.

The largest species is balsam poplar which can attain a diameter beyond 90 cm. Balsam poplar can be peeled for plywood, but so far this has not been commercially feasible in Yukon. Poplar stands are restricted to the southern half of Yukon and the southern third of the Mackenzie District in the N.W.T.

Mines have been the big users of wood. Often the development of a mine was dependent to a large extent on the availability of mine timbers. In permafrost areas, modern buildings are on pilings so as to be separated from the frozen ground by a metre or more of open air. At present, most of the lumber produced is dimensioned for use in housing.

In recent years there has been a marked increase in the number and size of forest operations in the N.W.T. The demand for timber is continuing to increase. However, forest production has been geared to supply limited local markets and a portion of the N.W.T.'s requirements is still supplied from the south. This, however, is not indicative of what the northern forests could actually produce if called upon, and forest-based industries would appear to have considerable potential for future development. It is estimated that the softwood allowable cut for the N.W.T. could approach 500 thousand cubic metres annually, although full development of this potential will depend upon the establishment of economic markets and transportation facilities.

Precise projection of forest productivity in the region is not possible, since there is not as yet a comprehensive forest inventory. However, the major areas of standing timber have been identified through a number of special studies. It is estimated that there are approximately 100 million cubic metres at present along the Mackenzie River system from Fort Smith to the Mackenzie Delta. Based on surveys in the southern half of the Liard Valley from 60° to Nahanni Butte, there are 10.5 million m^3 white spruce, 16 million m^3 of pulpwood and 24.7 million m^3 of aspen. The northern half of the Valley from Nahanni Butte to Fort Simpson has not yet been surveyed. These are conservative estimates, but they do indicate a resource of potential value. The estimates are based on trees of saw timber size and do not include smaller trees potentially usable for fibre or energy biomass production. Primary forest production in the N.W.T. and Yukon is listed in Table 7-2.

In Yukon, the total wood volume is approximately 459 million m^3, composed of 420 million m^3 of softwood and 39 million m^3 of hardwood. A detailed forest management inventory is underway, starting in the southeast Yukon area, from which annual allowable cuts will be determined for various areas.

Timber harvesting in Yukon is controlled by the *Yukon Timber Regulations*. Each person or company must obtain a permit to cut a tree except for the following:

- a trapper, a prospector or a scientist, who may cut a quantity of fuel wood;
- a householder, who may cut two Christmas trees; or
- a holder of a permit or licence issued in accordance with the *Territorial Land Use Regulations*.

Permits are issued without payment of dues to:

- an educational, religious or charitable institution, or a hospital in either territory;
- any federal, territorial or municipal government;
- any resident to cut 90 m^3 (stacked) of fuel wood for his own use; or
- any person to clear land.

Regular permits are issued for sawtimber to a maximum of 15,000 m^3 of wood at a rate of 20 cents per cubic metre. Other rates are applicable to special products or classes of timber.

In the N.W.T., the GNWT has established the *Forest Management Regulations*. A permit is required by each person or company, except:

- prospectors, trappers and non-recreational hunters and fishermen; and
- residents for 15 m^3 fuel wood, up to two Christmas trees or five transplants.

Free permits are issued to municipalities and to residents for up to 60 m^3 of fuel wood, 300 m^3 of round timber and 20 transplants.

Regular permits are issued for one year for 5000 m^3 of sawlogs at a rate of \$0.25/m^3. A five year timber cutting licence is available for larger amounts.

In the N.W.T., because of updated legislation, a reforestation deposit of \$2.00/m^3 is charged. Debris disposal, and road and stream bank cutting restrictions are similar to those in the Yukon.

The lack of attention to forest regeneration after logging is of increasing concern. It is important to ensure the establishment of a new crop of trees following harvesting, and tree planting in logged areas or severe burn areas is needed. Until the present, protection of the environment has not been a major concern in connection with timber harvesting. The regulations do provide that no timber be cut within 60 m of a public road or the shore of a lake. The forest officer has the authority to ensure that the timber is cut in a satisfactory manner and that debris resulting from the cutting be disposed of satisfactorily.

7.2.5 Fire Protection

Responsibility for forest fire management in Yukon Territory rests with DIAND and with the Government of the N.W.T. in the Northwest Territories.

Forest fire management in the territories presents some challenges which are unique to the North. First, the climate is very dry; consequently, vegetation during the summers is highly combustible. Secondly, the North is sparsely populated, making fire detection difficult and firefighting an expensive process. Lightning causes about 65 per cent of all fires and is responsible for over 95 per cent of the area burned. Virtually all lightning-caused fires occur during June, July and August.

The aim of forest fire management policy is to ensure protection for communities and resources by reducing wildlife damages to a level consistent with the present and future needs of the people who are dependent on those resources for their social and economic sustenance.

Forest protection legislation provide authority to prosecute individuals for the careless handling of open fires and the deliberate setting of fires. They also allow for the conscription of members of the general public in times of forest fire crises. A permit is required during the fire season (normally May 1 to September 30) for any open fire other than a small fire for cooking or warmth.

Until the spring of 1981, the North was divided into three priority zones, plus an unprotected area. The highest priority (Zone 1) was assigned to areas adjacent to main communities. Zone 2 included national parks, areas adjacent to roads and commercial waterways, mines, lodges and small settlements, and identified stands of merchantable timber. Zone 3 included wildlife sanctuaries, important trapping areas, recreational lands and important watersheds.

Due to an exceptionally bad fire season in the N.W.T. in 1979, a new forest fire management policy was established. It came into effect on May 15, 1981. This policy was designed to improve existing firefighting procedures as well as to increase community involvement in forest fire control operations. The new policy divides treed lands in each territory into a "fire attack zone" and an "observation zone". A fire attack zone includes areas around the communities, power and communication facilities, special trapping areas, parts of the N.W.T. caribou winter range, lands containing potential and merchantable timber, valuable watersheds and areas subject to erosion damage.

An observation zone includes treed areas outside the fire attack zone, where user intensity is low and where fires may be beneficial or at least neutral.

Fires in the fire attack zones will receive strong and rapid initial attack to keep them from spreading. Those in the observation zones will not be fought except under special circumstances.

Altogether, the fire attack zones encompass 251,875 km^2 (approximately 40 per cent of the treed area) in the N.W.T. and 145,040 km^2 (approximately 29 per cent of the treed area) in Yukon.

The expanded territorial road system, the emphasis on development and exploration, the growth of the tourism and recreation industries, and an increase in population have increased the incidence of fires caused by people. Individuals and industry are also using outlying areas, which enlarges the area where firefighters must respond immediately to outbreaks of fires.

Since 1987 community participation in firefighting activities has increased and local training programs have intensified. Local enterprises have also increased their support services for firefighting crews. At the same time, communities have relied heavily on aircraft to detect and quickly control the fires.

It is recognized that in the North, as in most of Canada, fire is a natural ecological factor. Wildfires have contributed to the present mosaic of vegetation, with its variations in species and age. Nevertheless, a recent report to the government has pointed out that in terms of human lifespan, fire can utterly destroy timber resources and caribou winter range. Lichens, an important winter food of caribou, do not reach a state of abundance until 50 years after a fire.

While the "normal" rate of burn in the North is about one per cent per year (less in the South) this rate is acceptable only if the fires are widely scattered in time and space.

7.3 Wildlife

7.3.1 General Characteristics of the Northern Biological System

Species in the North have evolved under conditions different from those found in mid and low-latitudes. This does not mean they are more specialized than species elsewhere; they have just developed under a different set of environmental conditions. Important influences on wildlife of the North include widely varying temperatures, low precipitation and the relatively recent recolonization of much of the area following retreat of the continental ice sheet 8,000 years to 10,000 years ago. As a result, the North has few plant species.

The small number of plant species partially explains why there are so few animal species in the Arctic. Species diversity is also influenced by the relatively low productivity of northern ecosystems. Nevertheless, plants not only provide food for animals, but they also help create environmental diversity, allowing different animal species to co-exist in a given area.

This overall low density does not mean there is an absolute biological scarcity. Indeed, huge herds of caribou, flocks of geese and colonies of sea birds, and large numbers of ringed seal, pods of whales and herds of walrus are impressive concentrations of wildlife.

To take advantage of the favourable seasons and to offset the limited food supply at other times, many Arctic species migrate. Those which remain in the North have developed special adaptations or are supported by marine food stocks that are less affected by seasonal variations.

A feature of the northern biological system is the relatively high productivity of the Arctic seas. The concentrated schools and herds of whales and walrus, and the widespread abundance of seals, combined with the large body size of these mammals suggest a high level of marine productivity. As on the land, however, marine plants have a very short growing season. The polar seas support a relatively small number of fish species.

As a rule, high latitude wildlife has a slower growth rate than similar populations in more temperate regions. The slower growth rate usually results in later sexual maturity and lower fertility. Some compensation occurs because Arctic animals often grow to large sizes and may also live longer. The slow growth rate is generally attributed to the short growing season and the limited availability of food throughout the year. Reproductive success is highly variable in most terrestrial Arctic species, often because of the effects of climate — such as weather extremes which can affect food supply or bring unusually late springs.

7.3.2 Important Northern Species

In this review the important species are briefly discussed. Where information is available, their populations are noted. Other comments are offered regarding their economic value, their role in the maintenance of Arctic ecosystems and in the case of rare and endangered species, importance as national and international resources.

7.3.2.1 Terrestrial Mammals

Moose

Accurate estimates are not available for the population of moose in the N.W.T. and only an approximate estimate of 35,000 animals has been made for Yukon. Moose populations fluctuate over time because of man-induced and natural causes.

Caribou

There are three main groups of caribou: the barren-ground caribou; the woodland caribou; and Peary caribou.

Barren-ground caribou

This group of six herds occurs in the mainland and Baffin Island portions of the N.W.T. and in Yukon. Population estimates for each herd are: Baffin — 100,000; Kaminuriak — 320,000; Beverly — 250,000 to 420,000; Bathurst — 480,000; Bluenose — 115,000 and Porcupine — 180,000.

Causes of population change include a variety of environmental circumstances and variations in predation and hunting pressure. Barren-ground caribou may be adversely affected by habitat alteration at any point in their migratory range.

Woodland caribou

The population estimate for Yukon is tentative, but totals approximately 25,000 animals in 22 herds. In the N.W.T. the population is between 2,000 and 5,000.

Peary caribou

This is a smaller sub-species found in scattered small herds over most of the Arctic archipelago. Local populations on the western Queen Elizabeth Islands have been reduced to very low levels due to a series of adverse winters. Total population is not well known, but is probably between 3,300 and 3,600.

Musk-ox

The distribution of musk-ox includes the Arctic islands (except Baffin Island) and areas of the mainland north of the tree line from near Paulatuk in the west to the central region of the Keewatin District and north to Boothia Peninsula.

Musk-ox were totally protected from hunting from 1917 to 1969. Today they are making a comeback in the Arctic. The population is now estimated at 75,000. Most are found on Banks Island. The current quota allows 2,539 animals to be harvested annually on Banks Island. An average 860 animals has been harvested annually for the past three years. Musk-ox have recently roamed onto the Yukon North Slope after being introduced to Alaska's Arctic Wildlife Range.

Wolf

The Timber Wolf and Tundra Wolf are widely distributed throughout northern Canada.

Population densities vary widely but may be in the neighborhood of 8 to 12 animals per 1,000 km^2 in a variety of Arctic settings. They become less numerous in the northerly parts of their range where their prey becomes less abundant. In Yukon, the wolf population is estimated at between 4,000 and 5,000 animals. About

100 are harvested each year. In the N.W.T. the population estimated at 9-10,000; between 800 and 1,000 are harvested each year.

Fox

The Arctic Fox is generally restricted to tundra adjacent to sea ice areas while the red fox is restricted to wooded areas of the North. Arctic Fox spend much of their winters on sea ice, relying heavily on scavenging at polar bear kills.

Foxes have a high reproductive potential. Their numbers fluctuate widely over an apparent four- to five-year cycle of abundance related to lemming cycles for arctic fox in tundra areas and a 10-year cycle for red fox in boreal forest areas. Estimates of total population are not available but numbers of Arctic Fox harvested fluctuate between 5,000 and 20,000 annually in the N.W.T. Red Fox are harvested only to a limited extent; approximately 1,000 pelts are marketed annually in the N.W.T. There are no reliable estimates of the Arctic or Red fox populations in Yukon. In 1987-88 about 600 pelts were harvested

Marten

This species is often referred to as a 'bread and butter' fur for trappers. The Yukon has had stable prices and harvest levels — about 6,000 are harvested annually. In the N.W.T. the harvest is between 20,000 and 30,000 skins per year.

Muskrat

This species is widely distributed in the Mackenzie District of the N.W.T. As with the fox, population estimates are based largely on the annual harvest, which ranges from approximately 75,000 to 150,000 in the N.W.T. About two-thirds of the annual harvest comes from the Mackenzie Delta. In Yukon, 9,860 pelts were harvested in 1986-87, mostly from Old Crow Flats.

Beaver

Beaver are found widely in forested areas of the North. Numbers of skins traded annually over the past five years have ranged between 2,500 and 5,000. In the N.W.T., figures for 1987-88 show that 3,072 pelts were harvested; in the Yukon in 1986-87, 954 pelts were taken.

Wolverine

An estimated 4,000 to 6,000 wolverines are in Yukon. Annual harvests range from 150 to 400 skins. The N.W.T. wolverine population has not been estimated but between 200 and 400 are harvested annually. Many of these pelts are used locally.

Lynx

This animal is found primarily in boreal forest regions, only rarely venturing north of the forest margin. The population is cyclical, depending on its main prey, the snowshoe hare. In Yukon, the 1987-88 harvest was about 800 skins. In the N.W.T., the 1987-88 harvest totalled 2,037 skins.

Dall's Sheep

This species is found throughout the mountainous ranges of the Yukon and western N.W.T. In the Yukon the population is about 25,000; in the N.W.T. about 7,000. About 250 animals are taken annually in the Yukon and about 200 in the N.W.T. It is a highly prized trophy but some are also hunted for subsistence.

Polar Bear

This circumpolar species is rarely found any distance from the sea, as its major prey is the ringed seal. A rough estimate of polar bears in the Canadian Arctic is between 10,000 and 12,000. Approximately 600 bears are harvested annually by quota.

Grizzly Bear

The grizzly is found throughout the Yukon, the Mackenzie Mountains, the Mackenzie Delta area and on the barrens of the N.W.T. mainland. Approximately 6,000 to 7,000 are found throughout the region. About 90 are harvested each year in Yukon and between 25 and 30 in the N.W.T. In the N.W.T., the population is very low, but is increasing. In Yukon and some areas west of the Mackenzie River in the N.W.T., this species is hunted as a big game trophy.

Black Bear

In Yukon there are roughly 10,000 black bears living in the forested river valleys of southern Yukon. About 86 are harvested each year. In the N.W.T., the black bear population has not been fully surveyed. Reasonable minimum estimates place the population between 3,000 and 5,000. There are no estimates regarding the number harvested each year.

7.3.2.2 Marine Mammals

Although most marine mammals in the North are migratory, some are year-round residents, well adapted to the ice environment, providing the prehistoric and historic basis for human habitation of the Arctic coastal region. Use of marine mammals remains high and provides Inuit with much of their income and food.

Beluga

This is a common whale in the eastern and western Arctic regions, reappearing each spring as the ice breaks in May or June. Some beluga winter in areas of persistent open water (polynyas); many from the eastern Arctic probably undertake long-distance migration to Baffin Bay and the North Atlantic.

Those from the western Arctic winter in the Bering Sea or open water areas further north. A total population of 50,000 beluga has been suggested for the Canadian Arctic, of which about 10,000 are found in the Mackenzie Delta-Beaufort Sea region and the remainder in the eastern Arctic.

Narwhal

This species is restricted to the eastern Arctic as far west as Somerset Island. The population is estimated at 20,000 animals. Narwhal hunting has a high cultural value among the north Baffin Island Inuit.

Bowhead

This species is rare. Population estimates indicate an eastern population in the hundreds and a western population of between 4,000 and 8,000 animals.

Walrus

In Canada, the walrus is found entirely in the eastern Arctic. The population is estimated to number at least 10,000 animals. Comprehensive surveys are underway for areas of concentration.

Ringed seal

This is the smallest seal in the Canadian Arctic, but the most widely distributed. Ringed seal are present throughout the year, maintaining breathing holes through the winter ice and whelping in birth lairs constructed beneath the snow on the winter sea ice. This species is by far the most important seal species, as it is the main prey of polar bears and the major species harvested by the Inuit. Estimates suggest a population numbering several million. Ringed seals make up approximately 80 per cent of the annual seal harvest by natives.

Bearded seal

This is a widely dispersed species of large seal, which makes only limited use of winter breathing holes in the sea ice, and prefers areas of open water at the edge of the land-fast ice. The population is estimated to number several hundred thousand.

Harp seal

Harp seals are summer migrants into the eastern Canadian Arctic, arriving in July and August. In 1984, the North Atlantic harp seal stock numbered approximately 2 to 2.5 million animals. There are various estimates of the numbers of migrants, ranging from 15,000 to 20,000 animals entering Lancaster Sound to 2,000 to 5,000 entering Hudson Strait each year.

Other marine mammals

Two other seal species have localized and rare status in the eastern Canadian Arctic: the harbour seal and hooded seal. The former is found in Hudson Bay and some localities in Baffin Island, often ascending rivers, sometimes wintering in fresh-water lakes or rivers. The hooded seal is sighted more rarely, from Jones and Lancaster sounds, south to Hudson Bay. Several whale species other than those mentioned are occasionally found in eastern Arctic waters. Orca (killer whales) have been reported in summer in Lancaster and Jones sounds, at the eastern end of Hudson Strait and off the east coast of Baffin Island. Pacific walrus are seen rarely in the Canadian Beaufort Sea.

7.3.2.3 Birds

About 200 bird species breed in the closed forest areas of the western Arctic and the southern edge of the N.W.T. This number is about halved in the open forest zone near the tree line, and halved once again in the true Arctic. Most Arctic species return to the North to breed about the time the snow melts from the land. A very few species arrive before the end of winter, and fewer still spend the whole year there.

One characteristic of many Arctic birds is their concentrated occurrence at certain favourable locations. Thus, goose colonies may have about 400 nesting pairs per square kilometre and colonies of sea-birds may number in the hundreds of thousands on very restricted cliffs or island sites.

Snow Goose colonies on Banks Island, near Arviat and on the Great Plains of the Koukdjuak (Baffin Island) are examples of high nest density areas. During the fall staging period in the western Arctic, hundreds of thousands of snow geese gather on the Yukon and Alaskan North Slope.

Colonies of seabirds (Thick-Billed Murres, Black-Legged Kittiwakes and Northern Fulmars) may number in the hundreds of thousands at preferred nesting sites. Prince Leopold Island in Lancaster Sound is one such important site.

Especially favourable habitats for birds in the North are provided by areas where marine currents favour high marine productivity. These include protected coastal areas and river deltas.

Northern birds are often larger in body size than related subspecies (or species) found to the south. There are other Arctic adaptations, including resorption or dissolving of eggs if nesting is delayed by adverse weather or other conditions, non-breeding, ability to produce a second clutch of eggs in favourable years, arrival at the nesting grounds in spring already paired, and polygamy.

Northern birds often undergo very wide population fluctuations from year to year. The critical nature of the short breeding season, the short time available for fledging the young and unusually early and severe winter storms can cause poor breeding success or high mortality among young birds.

Species hunted for food in the North include Canada Goose, Snow Goose, Brant, White Fronted Goose, Common and King Eider, Pintail, Old Squaw, several species of scoter duck, mergansers, loons, grouse and ptarmigan. Eggs of many sea birds, such as gulls, murres, dovekies and ducks that nest in colonies are also gathered.

7.3.2.4 Fish

About 70 species of fish are found in the coastal and inland waters of the Canadian North, of which about 15 are important to domestic, sport or commercial fisheries. Though quantities often appear great, the stocks

do not reproduce or grow quickly and are vulnerable to intensive sustained fishing. Some test fishing is now going on in the coastal waters of south Baffin Island.

Arctic char

The arctic char is a widely distributed species, found in lakes, rivers and coastal waters. It is important commercially and in the domestic economy of the North. As a sport fish it has produced fishing catches of world record. In 1987-88, 59 tonnes were marketed through the Freshwater Fish Marketing Corporation.

Whitefish

Whitefish are primarily fished, both commercially and domestically, in the Mackenzie River Valley within the treeline and near communities. Commercial fishing centres on Great Slave Lake where lake whitefish and inconnu, a fast growing whitefish species, are important catches. No reliable data are available for the domestic harvest, but the annual total harvest is substantial. In 1987-88, 1,295 tonnes were marketed through the Freshwater Fish Marketing Corporation.

Lake trout

The lake trout is a highly valued species in commercial, domestic and sport fisheries. There are no reliable figures on the size of the domestic harvest. The very large size of trophy fish obtainable in underexploited lakes makes sport fishing for lake trout attractive resulting in world-class record sizes. However, the slow growth rate of the species suggests the need to undertake any harvesting at a very low intensity. In 1987-88, 112 tonnes were marketed through the Freshwater Fish Marketing Corporation.

Northern pike

This species occurs throughout Yukon and in almost all mainland regions of the N.W.T. It is an important sport fish and there is some potential to expand this aspect of the fishery. In 1987-88, 107 tonnes were marketed through the Freshwater Fish Marketing Corporation.

Inconnu

This is a fast-growing fish found in the Mackenzie River drainage basin. In 1987-88, 63 tonnes of inconnu were marketed through the Freshwater Fish Marketing Corporation. This volume has remained fairly constant since the beginning of that fishery in 1945. Great Slave Lake produces the only inconnu available in the commercial market.

Walleye (Pickerel)

This species occurs throughout the Mackenzie Valley drainage system, although it is only abundant in the most southerly part of the area. The walleye is a popular sport fish in Canada. In the North, where access to many lakes is very difficult, they are abundant enough that there is scope for expansion of this fishery in the future. In 1987-88, 23 tonnes were marketed through the Freshwater Fish Marketing Corporation.

Grayling

Although common and widely distributed, this fish is small and slow-growing. It is a popular sport fish and sought after by fly fishermen.

Salmon

In Yukon, there are five species of salmon, with two, the chinook and chum salmon having fairly extensive distribution and local importance for food, recreational fishing and commercial purposes.

Other species of fish

There are several species of fish which have value in the local economy but restricted distribution in the North. Capelin, Atlantic cod and Greenland halibut are found in eastern Arctic marine waters and are used to a limited extent. Exploratory fishing of Greenland halibut resulted in a 100 tonne commercial quota being established for Cumberland Sound in 1988. Fifteen tonnes were taken in that year. Sculpins of various species occur in all inshore Arctic waters and are sometimes utilized as food. In the western Arctic, herring are taken in marine waters and burbot and suckers in fresh-water locations.

7.3.2.5 Invertebrates

The invertebrate fauna of the North includes a wide range of species. The aquatic fauna is dominated by small crustacea and the larvae of midges. Probably less than half the insect species that occur have been collected and named but include important leaf-eaters, plant pollinators and many kinds of grubs and mites that live in the soil.

Invertebrates play an important ecological role by providing food for many species of fish, mammals and birds.

Shellfish

Scallops have been test fished in Cumberland Sound with some success. In 1988 a Cumberland Sound quota of 100 tonnes was established. Two vessels, operating out of Pangnirtung, N.W.T. harvested 17 tonnes. Intertidal bivalve molluscs are also harvested domestically in a few communities.

Crustacea

The most important crustacean resource is the salt-water prawn found in certain waters off Baffin Island, Ungava Bay and perhaps elsewhere in the North. Test fishing for these "shrimp" proved so promising that in 1987 and 1988 quotas of 16,000 tonnes were established for each year. Allocations of 1,000 tonnes were distributed among 16 commercial licences. In each year the total quota was harvested. In 1989 the quota was set at 19,200 tonnes. Three licences were held by joint ventures located on Baffin Island.

Non-economic species

The rich marine life of the North is supported by microscopic plants and animals found either in the top few metres of the sea as plankton or on the sea bottom as benthos. These microscopic plants and animals can also be abundant when attached to ice surfaces. The plankton in northern seas can be especially productive during the spring providing a rich food source for commercially important fish and marine mammals.

Insects

About 1,000 insect species occur north of the tree line, and 10 times that number in the region immediately to the south of the tree line. About half the species found in the tundra areas belong to one order of insect — the two-winged flies (Diptera), which include mosquitoes, blackflies and midges. The next most common order of insect is the one which includes bees and wasps (Hymenoptera). There are about 20 species of butterflies found in the tundra, and more than 50 species of moths, though some other orders (e.g. the dragonflies and crickets) are entirely absent.

7.3.3 Importance of Wildlife

The wildlife population of the north are of great cultural, ecological, scientific, and economic importance. It is difficult to quantify even the economic dimension due to incomplete reporting systems and the problems of assigning market values to products used in the domestic economy.

7.3.3.1 Economic Considerations

Fur trading

In the N.W.T. in 1987-88, trappers traded furs, including seals and bears, valued at approximately $6.1 million. In addition, many animals trapped provide fresh meat for trappers' families. Many skins are not traded, but used locally to produce handicrafts. In Yukon in 1987, furs traded were valued at approximately $1.2 million. In Yukon, about 750 people are registered trapline holders or assistants. Although the average income from trapping is less than $1,600 per person, many trappers make their living this way and some earn up to $30,000 per season. As with other resource industries, annual income from trapping depends on demand and on animal cycles. Currently, the United States and Switzerland are the biggest importers of raw furs from Canada.

Since 1982, the animal rights and anti-sealing movements have dramatically decreased the number and value of seals taken. In the N.W.T. from 1979 to 1983, an average 28,093 seal pelts were commercially sold, and income from the four seasons average $544,000. From 1984 to 1987 the seasonal average was 4,818 pelts — a decline of almost 500 per cent — and the average seasonal income was only $48,250. As well, seal hunt costs have also increased. Consequently, seal hunting has become considerably less profitable since 1982. Tables 7-3 and 7-4 list the number of pelts and their values for the N.W.T. and Yukon.

A similar ban on the rest of Canada's fur products now being considered by the European Economic Community would also seriously affect the industry. As with seal skins, the loss of income gained through fur sales would greatly affect the livelihood of northern residents, many of whom have turned to trapping in response to the downturn in the mining and oil and gas industries.

Commercial fishing

About 1,658 metric tonnes of freshwater fish were landed in 1988 by the N.W.T. commercial fishery, for a value of $2.7 million. The major species harvested in the N.W.T. are whitefish from the Great Slave Lake area and arctic char from the Cambridge Bay region.

In Yukon, the commercial fishery is on a smaller scale. Chinook and chum salmon, lake trout and whitefish are harvested for local markets. In 1988 the value of Yukon's commercial fishing, including processing, was about $900 thousand. Some additional processing is carried out on fish taken in northern B.C. The commercial market is made up of chinook and chum salmon. Processing of salmon roe for Far Eastern markets and smoked salmon for other specialty markets have increased in importance.

A number of native organizations are among the holders of commercial licences for operations in the eastern Arctic. Some are from the North. Other are from Quebec and Labrador. The viability of any commercial fishery in the eastern Arctic is threatened by the prohibitive cost of transport to southern markets. Another difficulty is access to the resources. Large vessels are necessary, except in salmon fishing.

Marine mammal products sold include whale skin, or muktuk, narwhale and ivory walrus tusks. Annual sales total $60,000, of which approximately two-thirds is from whale skin. Ivory tusks increase in value after native artists have carved them into various objects.

Subsistence economy

This is the hardest aspect to quantify, yet it is undoubtedly the most important both in economic and non-economic terms to the local native populations.

In the N.W.T. an estimated 4.5 million to 5.5 million kg of fish and meat are produced and consumed locally. Approximately 5,500 gatherers are active in hunting, trapping and fishing. Using an average value of $10/kg for all country food, each gatherer annually produces between $10,000 and $15,000 in food. Therefore, annual food production in the N.W.T. is valued at approximately $55 million. Country food is especially important to natives since it increases their gross income 50% and saves them money on food.

In Yukon, food production values are much lower because the native population is only 5,000 compared with 27,000 in the N.W.T. However, Yukon natives depend as much on local food resources as many N.W.T. natives. In Yukon, natives annually harvest an estimated 800 thousand kg of fish and game. At an average market value of $9/kg, food produced under subsistence conditions is valued at $3.6 million. However, other estimates have placed the total value at about $6.5 million.

Tourism

It is assumed that a large number of tourists venturing north do so for the scenic or "exotic" value of the visit. This may entail an attraction for the "wilderness experience", whether merely viewing "unspoiled" nature or for other uses of wildlife, e.g., sport fishing or hunting.

Most of the available tourist accommodation, whether at community-based motels, hotels or private homes, or in fishing or hunting lodges or serviced campsites, is fully utilized during the summer season and significant growth is reported each year in this sector of the northern economy.

In Yukon, Dawson City with its Klondike Gold Rush history is the major tourist attraction and Kluane National Park in the southwest attracts many tourists heading to Alaska. In the N.W.T., hunting, sport fishing and wilderness experiences are emphasized. Four national parks each have different, but equally enthralling landscapes. These are: Auyuittuq National Park Reserve on Baffin Island, Ellesmere Island National Park Reserve, Nahanni National Park Reserve in the extreme southwest corner, and Wood Buffalo National Park, which straddles the Alberta/N.W.T. border.

7.3.3.2 Scientific Considerations

Scientific study of arctic and sub-arctic biological systems is of great importance. The natural condition of large areas of the globe is being altered by environmental changes before man has had an opportunity to study and understand these unique areas and resources. Therefore, there is a pressing need to gather knowledge in order to better manage and protect the North from serious damage at a time when the pace of mineral resource development, urbanization and effects of pollution in the North is increasing.

Although the work of making inventories of species to answer the question "what is there?" has been carried out over much of the North, basic questions remain. These concern the lack of information on abundance, life history, physiology and behaviour for even some of the more common and widespread species.

7.3.3.3 Cultural Values

There are a variety of benefits derived from use of wildlife by native and non-native residents of the North. Many non-native residents of the territories see hunting, fishing and the wilderness experience as one of the advantages of living in the North. In this case, as with many native people, they value wildlife for the contribution it makes to their lifestyle. There are recreational as well as psychological and emotional rewards, involved in this lifestyle choice. These often contribute to the decision by non-natives to continue living in the North.

For the native people, the social value of wildlife is great. Although they obtain significant economic value from harvesting fish, fur and game on a year-round basis, the "lifestyle" question is as important culturally as it is economically. It is important to recognize that native cultures are rooted in a comprehensive and complex relationship linking man and nature, where nature includes wildlife, rivers, lakes, landforms and even the sky and the wind. Thus, native concerns about wildlife and wilderness involve the very question of identity. To continue hunting, even when the economic need is minimal, has importance for many reasons. Social transactions, for example, often involve gift-giving or ceremonial acts which use wild meat or parts of animals. The sharing of food among relatives and friends helps bind people together and reinforces community solidarity at a time when social change serves to undermine the quality of life. Trapping, hunting and fishing offer native people the opportunity to teach children traditional skills — an important part of a young person's social development.

Finally, events in the natural world which are significant to members of a hunting society continue to form the basis of native cosmology. There are also some recreational values of native hunting which are similar to those of non-natives. Getting away from town and out on the land is often very important to native people, especially if they are also involved in full-time wage employment.

None of the above social values can be easily quantified. What is important to understand, however, is that the social value of traditional activities will continue because living close to the land is the native way of life.

7.3.4 Threats to Wildlife

Threats to wildlife are not wholly the works of man. In the North, weather conditions are critical to the survival and abundance of many species. Some characteristics already noted, such as failed breeding by sea birds, can be related to climatic conditions. Caribou, especially Peary caribou on the Arctic archipelago, is another species whose populations may decline precipitately because successive years of inclement weather affect calving success or winter feeding. In the western Arctic, fire is often considered a major threat in areas south of the treeline.

Hunting provides another threat, especially when concentrated on a particular local population situated near a permanent settlement. However, there is potential for recovery if no other environmental change has occurred and hunting decreases.

The largest threats are often seen to occur as a result of industrial development because of the intensity, scope and long-term nature of the resulting impacts. Mining activities, major construction projects, hydroelectric developments and transportation corridors fall into this category. The nature of the threat is often stressful in a variety of ways, including landscape alteration and destruction, air, water and noise pollution disturbance and increased hunting and trapping are a result of larger human populations or increased access to previously remote populations. Many of these potentially harmful effects can, to some extent, be mitigated if industrial activities are planned and executed with full appreciation of the responsiveness of the arctic environment to disturbance.

In addition, regulations concerning the protection of wildlife and its habitat should transcend the political boundaries of province and territory.

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Table 7-1

Location, operator and installed megawatt capacity of existing hydroelectric installations

Territory	River	Name	Operator	Capacity (Mw)
Yukon	Yukon	Whitehorse Rapids	YEC	40
	Aishihik	Aishihik	YEC	31.2
	Mayo	Mayo	YEC	6.15
	Porter Creek	Porter Creek	YECL	1.0
	McIntyre Creek	McIntyre Creek	YECL	0.65
N.W.T	Snare	Snare Rapids	NWTPC	7
	Snare	Snare Falls	NWTPC	7
	Snare	Snare Forks	NWTPC	9.6
	Talston	Twin Gorges	NWTPC	20.8
	Yellowknife	Bluefish Lake	N	3.2

YECL Yukon Electrical Company Limited
N Nerco
YEC Yukon Energy Corporation
NWTPC Northwest Territories Power Corporation

Table 7-2

Primary Forest Production in the N.W.T. and Yukon

	Round Timber	Fuelwood	Lumber	Total
		(000 cubic metres)		
N.W.T.				
1985-86	0.8	32.4	37.2	70.4
1986-87	0.7	30.9	27.4	59.0
1987-88	0.7	25.6	40.9	67.2
YUKON				
1985-86	4.1	73.6	30.7	108.4
1986-87	4.0	98.1	38.8	140.9
1987-88	7.5	67.1	169.2	243.8

Source: INAC, Renewable Resources
Government of the Northwest Territories, Renewable Resources

Table 7-3

Fur Production in the N.W.T.

Wildlife	1985-86 pelts	1985-86 value (dollars)	1986-87 pelts	1986-87 value (dollars)	1987-88 pelts	1987-88 value (dollars)
Black or Brown Bear	34	8,735	76	10,959	56	7,827
White Bear	245	188,994	222	203,244	240	252,312
Beaver	2,918	63,175	4,866	137,319	3,072	62,054
Coyote/Prairie Wolf	*	*	16	728	5	181
Ermine	1,159	1,912	2,166	5,003	2,865	6,847
Fisher	*	*	63	11,943	60	7,971
Blue Fox	15	333	16	707	40	831
Cross and Red Fox	1,825	78,585	2,554	127,036	1,913	69,930
Silver or Black Fox	67	2,313	121	4,446	102	3,782
White Fox	4,438	62,531	5,121	92,280	13,798	222,286
Lynx	1,149	707,370	1,674	924,969	2,037	794,084
Marten	26,625	1,573,538	28,975	3,185,801	37,049	3,957,945
Mink	3,227	111,073	8,107	309,850	7,802	304,590
Muskrat	90,786	229,689	116,398	395,753	76,322	196,148
Otter	91	2,702	102	4,231	73	2,769
Rabbit	11	17				
Hair Seal	3,602	28,744	2,563	33,011	976	17,802
Squirrel	3,335	2,868	6,689	5,619	4,644	3,622
Wolf	852	168,244	716	160,083	774	195,783
Wolverine	117	27,145	189	43,181	130	28,757
Total	140,610	3,267,945	180,634	5,656,163	151,658	6,135,521

Source: Statistics Canada. *Fur Production*. (Catalogue 23-207)

* 1985-86 N.W.T. figures for coyote or prairie wolf and fisher are confidential.

Note: — 1985-86 and 1986-87 white bear figures for N.W.T. includes Yukon.
— 1986-87 N.W.T. figures for fisher includes Yukon.
— 1987-88 N.W.T. figures for white fox includes Yukon.

Table 7-4

Fur Production in Yukon

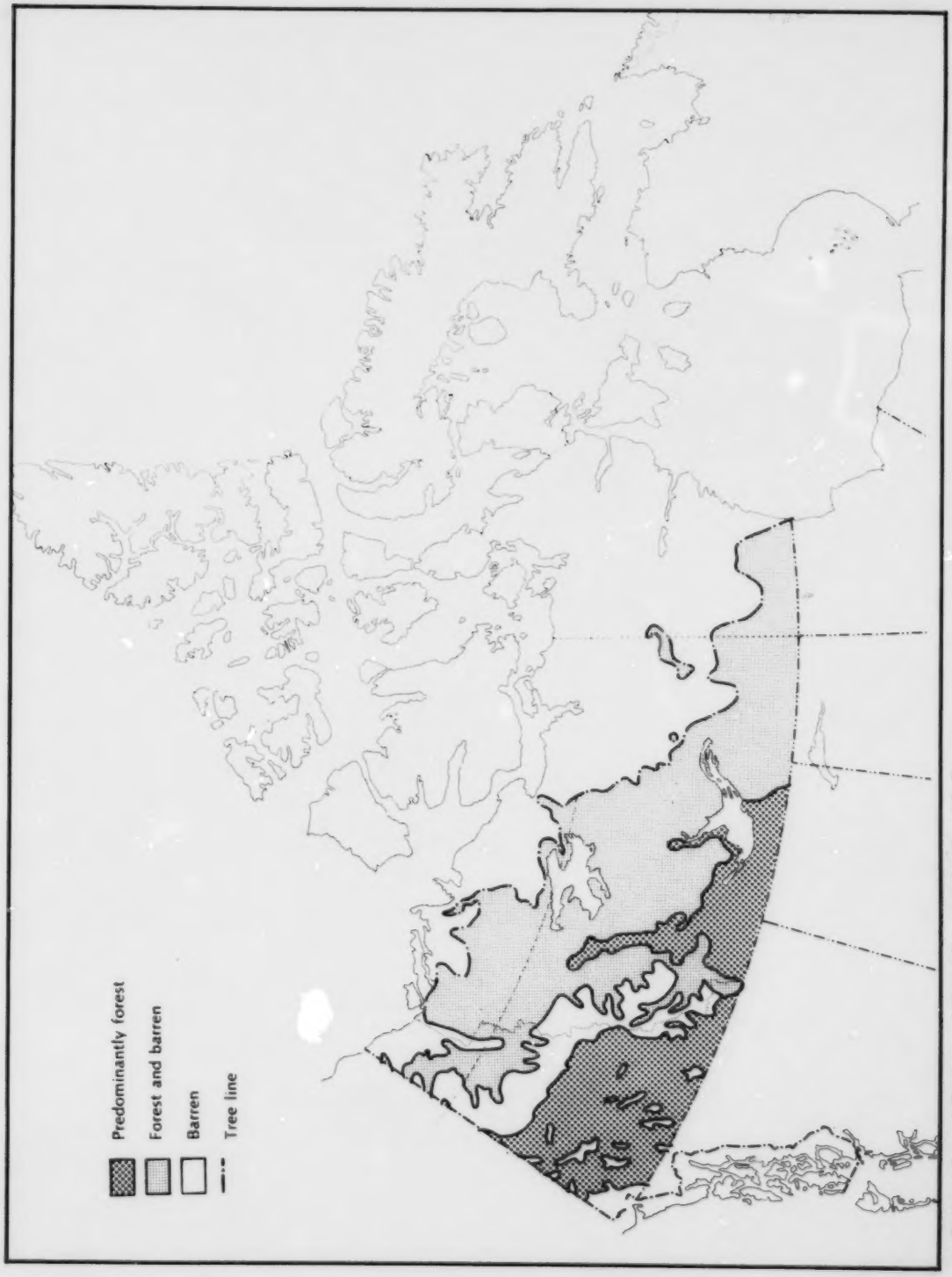
Wildlife	1985-86 pelts	1985-86 value (dollars)	1986-87 pelts	1986-87 value (dollars)	1987-88 pelts	1987-88 value (dollars)
Black or Brown Bear	17	935	15	870	15	900
White Bear					3	3,154
Beaver	716	25,060	954	44,838	636	18,444
Coyote/Prairie Wolf	65	4,225	50	3,200	77	3,311
Ermine	*	*	380	570	407	651
Fisher	*	*			3	660
Blue Fox Cross and Red Fox Silver or Black Fox	277	11,911	233	11,883	183	6,039
White Fox	3	42	8	144		
Lynx	805	516,810	668	402,136	799	300,424
Marten	6,127	392,128	5,296	598,448	8,010	945,180
Mink	206	8,240	263	10,783	263	13,676
Muskrat	6,580	18,424	9,860	47,328	6,334	30,403
Otter	25	1,100	26	1,144	15	630
Rabbit						
Hair Seal						
Squirrel	5,168	4,134	8,222	7,400	8,954	6,268
Wolf	161	15,939	102	13,158	70	7,770
Wolverine	207	44,505	188	39,480	95	18,715
Total	20,910	1,045,295	26,265	1,181,382	25,864	1,356,225

Source: Statistics Canada. *Fur Production*. (Catalogue 23-207)

* 1985-86 Yukon figures for ermine and fisher are confidential.

Note: — 1985-86 and 1986-87 white bear figures for Yukon included in Table 7-3.
— 1986-87 Yukon figures for fisher included in Table 7-3.
— 1987-88 Yukon figures for white fox included in Table 7-3.

Figure 7-1:
Forest Regions



Source: Forest Regions of Canada, compiled by J.S. Rowe

8.0 Non-Renewable Resources

8.1 Mines and Minerals

8.1.1 General

Northern Canada is regarded as a major potential source of non-renewable resources, both minerals and oil and gas. Historically mining, initially of gold and silver and more recently lead and zinc, has been the basis of much of the non-renewable resource activities in the North. Through these activities, mining has played an important role in the economic, social and constitutional development of the two territories, as documented in other sections of this manual. Some of the major transportation infrastructure, for example, was developed as a result of mining activity.

At present, there are 8 mines operating in the two territories, an area comprising almost 40 percent of Canada's total area. The potential for additional mines exists but new developments must overcome high costs and difficult operating conditions resulting from factors such as remoteness and lack of existing transportation and power generation infrastructure in some areas. However, the industry has demonstrated that it can successfully meet these challenges. It is expected that northern mining will continue to develop and provide a significant contribution to the regional and national economies.

The Klondike Gold Rush of 1898 is generally regarded as the first major period of mining activity in northern Canada. However, gold had first been reported at Fort Selkirk, Yukon in 1850 and mineral exploration had been proceeding for over two decades prior to the Klondike discovery, following the collapse of the California boom and the migration of prospectors to British Columbia and Yukon. The Klondike Gold Rush, like others before it, was short-lived and prospectors soon moved on to the Alaskan gold fields. In the Klondike, placer gold production became dominated after World War I by a few large operators, such as the Yukon Consolidated Gold Corporation. By the middle of the present century placer gold production was declining. By 1972 when most placer operations in the area were shut down, the placer mining industry was at its lowest ebb since 1892. As the price of gold started to rise in the 1970s and 1980s, the placer industry rebounded to heights not seen since World War I. With the rise in gold prices to nearly $1,000 per ounce in 1980/81, many operations were re-established. Today, a healthy placer gold mining industry produces $70 million worth of gold annually.

Copper was the second metal to be mined in Yukon in the early days of its history. It was recovered in high grade deposits near Whitehorse starting in 1900. Silver was discovered in the Mayo area in 1906 near the present town of Elsa. Production began in 1913. The discovery of rich silver-lead deposits at Keno Hill in 1919 led to mining production the following year.

In the N.W.T., mineral production began in 1876, when 14.5 tonnes of mica worth $120,000 were mined from the Cumberland Sound area of Baffin Island. Radium was discovered in 1930 at Port Radium on Great Bear Lake and the Eldorado Mine was brought into production in 1933. In 1897, lode gold deposits were discovered in the Yellowknife area. These deposits were not extensively prospected until 1934. It was not until 1938 that gold production began at the Con Mine, and in the following year, both the Rycon and Negus Mines entered production.

Also of significance was the discovery of an oilfield at Norman Wells in 1920 by Imperial Oil. By 1932 a refinery was in operation to provide fuel oil for the mining activity on Great Bear and Great Slave lakes and for the various Mackenzie Valley settlements. By 1939 petroleum production was 3,180 cubic metres (20,000 barrels) per year, rising to 190,779 cubic metres (1.2 million barrels) in 1944.

In the decade following the end of World War II, mineral production in both Yukon and the N.W.T. increased significantly. In Yukon, United Keno Hill Mines Ltd. was formed in 1945 and in 1947 began production of the silver-lead-zinc deposits around Elsa, while in the N.W.T., gold mining escalated in the Yellowknife area with the opening of the Giant Yellowknife and Discovery mines. United Keno Hill closed in 1989.

In the last three decades, however, the development of the non-renewable resources in Canada's north has increased dramatically. This can be attributed to:

(1) the development of four substantial lead-zinc or lead-zinc-silver deposits at:
   a) Pine Point on the south shore of Great Slave Lake, 80 km east of Hay River (closed in 1988);
   b) Faro, Yukon, owned by Curragh Resources;
   c) Nanisivik, 29 km northeast of Arctic Bay on northwestern Baffin Island; and
   d) the Polaris mine on Little Cornwallis Island.

(2) the extension of the post-war demand for other metals such as tungsten. The Canada Tungsten Mine at Tungsten, N.W.T. opened in 1962 and closed in 1986;

(3) the relative stability of zinc and gold prices when metal prices were depressed from 1980 to 1986;

(4) more gold activity in Yukon since the late 1970s, after gold prices rose on world markets. Activities included reworking old placer tailings, beginning operations in previously unworked high-level gravels, and opening new bedrock gold mines such as Mt. Skukum (closed in 1988) and Ketza (opened in 1988); and

(5) increased gold exploration and the development of many mines in N.W.T., including:
   a) the Camlaren Mine northeast of Yellowknife (closed in 1981);
   b) the Cullaton Lake and Shear Lake mines west of Arviat (closed in 1984 and 1985);
   c) the Lupin Mine near Contwoyto Lake and
   d) the Salmita Mine also northeast of Yellowknife (closed in 1987).

8.1.2 Government Regulations, Assistance and Services (Minerals, Other Than Oil and Gas)

The Northern Affairs Program, INAC, manage mineral resources in Yukon and the N.W.T. Regional offices in Yukon and the N.W.T. administer the resources through four mining districts in Yukon and two mining districts in the N.W.T. Regional and district geologists examine mineral property; collect rock and mineral specimens; advise industry, government departments and scientists on geological problems; and undertake geological evaluations on mining developments when requested. Several acts and regulations provide an administrative structure under which exploration and development can proceed in an efficient and orderly manner to ensure that mines are safe and miners are protected. (Table 8-1).

The federal government released the Northern Mineral Policy in December 1986 which supports mining activity as a cornerstone of the northern economy and provides direction in management and regulation of the industry.

In the N.W.T., the *Canada Mining Regulations* govern the disposal and exploitation of mineral rights. A prospector's licence, which is obtainable from any mining recorder for the N.W.T., is required in order to prospect, stake claims or acquire any mineral or exploratory right. Block-type claim staking is provided for a maximum area of 2,582.5 acres (1,045.1 hectares). Claims are marked by four corner posts and boundary posts every 1,500 feet (457 m). Work must be performed to the value of $2.00 per acre (.405 hectares) per year to maintain claims in good standing and leasing is mandatory after 10 years. Exploratory rights (prospecting permits) covering large areas are also available. Amendments to the *Canada Mining Regulations* in December 1987 simplified some of the administrative requirements.

In Yukon, two statutes govern the administration and disposition of most mineral rights. The *Yukon Quartz Mining Act*, which governs hard-rock mining, provides for two-post staking of 51.65 acre (20.9 hectare) claims with required representation work set at $100 per claim per year. Prospector's licences are not required, leasing is not mandatory after a specified time period and there are no exploratory rights granted. The *Yukon Placer Mining Act* controls placer mining operations of unconsolidated deposits of precious metals. Claims are staked along creeks or streams using surveyed base lines if the creek has been surveyed. Annual work to the value of $200 is required to maintain claims in good standing. Placer leases covering one to five miles are also available.

Other regulations made pursuant to the *Territorial Lands Act* are applicable to both territories. The *Territorial Dredging Regulations* apply to the operation of dredges on rivers in Yukon and Northwest Territories and the *Territorial Coal Regulations* govern the administration and disposition of coal rights in the territories.

In August, 1988 the federal government released the *Northern Political and Economic Framework* which set out, as one government goal, the transfer of provincial-type federal programs to the territorial governments. This would include most current federal responsibilities for minerals in the two territories. To date, only mine safety responsibilities have been transferred, to the GNWT in 1981 and to the YTG in 1989. Discussions regarding further transfers are continuing with the territorial governments.

8.1.3 Mineral Exploration and Production — Yukon

The value of mineral production mainly from the Yukon's two lode (hard-rock) mines, increased by nearly 10 percent to $540 million in 1989 compared with $492 million in 1988 (Table 8-2). The increase was mainly the result of higher metal prices as opposed to increased production levels. Zinc accounted for 63.3 percent of the value of production while gold made up 14.9 percent.

Curragh Resources Inc., the largest mineral producer in the Yukon, began to prepare for the next phase of development at the Faro mine which will extend production well into the next century. A fourteen kilometre haulage road was completed and surface stripping for the Vangorda open pit mine was well underway at the end of 1989. The balance of the production came from the Canamax Ketza River gold mine, small seasonal operations and the many placer gold mines in the territory.

Yukon exploration expenditures dropped sharply in 1989 to an estimated $18 million from the record high of $50 million in 1988. The decline was attributed to several factors including lower prices for gold and silver, a climate of declining investor confidence and changes to the structure of the flow-through share system. Claim staking was also down. However, strong base metal prices encouraged exploration for zinc, nickel, copper and lead. Two of the most significant projects being evaluated during the year where the Curragh/Hillsborough Resources zinc-lead project at Mt. Hundere and Total Energold's O'Brien gold property at Antimony Mountain.

The Yukon's lode mining industry directly employed some 640 persons in 1989. In addition, the Yukon placer mining industry seasonally employs about 700 to 800 persons at approximately 200 sites.

The Yukon accounted for 12 percent (10.5 percent) of the zinc, 3.5 percent (3.7 percent) of the gold and 5.1 percent (11 percent) of the silver produced in Canada in 1989 (in 1988). In total, Yukon accounted for 3.7 percent of Canada's metallic mineral production in 1989, compared to 3.6 percent in 1988.

8.1.4 Mineral Exploration and Production — N.W.T.

Mineral production in the Northwest Territories in 1989 came from four gold mines and two lead-zinc mines. The value of mineral production was estimated at $966 million compared with $826 million in 1988. Zinc and lead accounted for 79.5 percent of the total while gold accounted for approximately 18.1 percent. More than 1,600 people were directly employed in these operations.

Total exploration expenditures in 1989 were estimated at $55 million compared with 1988

expenditures of $113 million. Various factors influenced the level of exploration including the difficulty of raising venture capital and the loss of flow-through funding.* New staking decreased, in part as a result of the land withdrawals in the southern Slave region pending the Dene-Metis land claim settlement. Gold continued as the favourite target for exploration.

The main new development was construction of the Neptune Resources' Colomac gold mine project, located approximately 212 km north-northwest of Yellowknife. It is scheduled to start production in the second quarter of 1990. High priority has been placed on hiring native people to construct and operate the mine. An agreement has been negotiated with the Dogrib Tribal council to give members of the native community the first choice on jobs and entrepreneurial opportunities which become available.

The N.W.T. mineral industry accounted for 25.6 percent (23.7 percent) of the zinc, 13.6 percent (14.7 percent) of the lead, 7.6 percent (8.9 percent) of the gold and 1.6 percent (1.8 percent) of the silver produced in Canada in 1989 (in 1988). The value of all metallic mineral production in the N.W.T. accounted for 6.6 percent of Canada's metallic mineral production in 1989, compared with 5.9 percent in 1988.

8.2 Oil and Gas

8.2.1 Introduction

In the late 1950s and early 1960s the federal government, recognizing oil and gas exploration and development as a valuable instrument for economic development in the North, encouraged and facilitated northern oil and gas exploration.

Two significant events influenced northern exploration in the late 1960s. One was the release of information concerning the magnitude of the discovery of oil and gas at Prudhoe Bay, Alaska. The second was the creation of Panarctic Oils Ltd. in 1967 to explore in the Arctic Islands. Most of the known potential oil and gas lands (some 243 million hectares) were held under exploratory permits by industry (186 million hectares) from 1968 to 1972.

In 1976, the federal government announced its "National Energy Strategy for Self-Reliance", an assessment of Canada's energy prospects in relation to the changing situation in world oil prices and supplies. Federal initiatives were undertaken to provide an inventory of non-renewable resources with a view to developing a secure supply of hydrocarbons in keeping with the goal of self-reliance. This "need-to-know" was also recognized in the Joint Policy Statement (EMR & INAC) of 1976. The federal initiatives at that time included both tax incentives and the creation of Petro-Canada to increase the pace of exploration; however, these initiatives were largely offset by continued uncertainty affecting industry plans.

The National Energy Program, introduced in late 1980, sought oil and gas self-security by 1990 and offered incentives for greater participation by Canadians in the petroleum industry. The *Canada Oil and Gas Act* (Bill C-48) proclaimed on March 5, 1982, provided the legislative basis for the management of Canada Lands.* Amendments to the *Canada Oil and Gas Production and Conservation Act* strengthened existing provisions for the supervision and control of oil of pollution. The oil and gas management groups of Energy, Mines and Resources Canada (EMR) and Indian and Northern Affairs Canada (INAC) were merged into a single Canada Oil and Gas Lands Administration (COGLA). The administrator of COGLA reports to the two ministers through the respective deputy ministers and receives from them policy direction respecting northern oil and gas policy.

The Frontier Energy Policy of October 1985 and the *Canada Petroleum Resources Act*, which became law in 1987, reduced government intervention in the oil and gas industry. Geology and economics became the principal determinants of industry decisions on exploring and developing oil and gas resources. The main policy change was toward more reliance on market forces and less intervention into essential business decisions. In September 1988 the governments of Canada, the N.W.T. and the Yukon signed agreements on the principles for a Northern Accord, under which the territorial governments would gradually take responsibility for managing on-land oil and gas activities in the N.W.T. and Yukon. Also under the accord, offshore oil and gas would be jointly managed by the federal and territorial governments.

As with other non-renewable resources, many of the oil and gas reserves now known to exist in northern Canada will require large expenditures on transportation systems and infrastructure prior to commercial development. Several transportation system proposals are being studied to provide for a means of transporting and storing oil and gas for southern markets, taking into account the concerns of the native people and the protection of the environment.

Much of the oil and gas activity in Yukon and the N.W.T. has been associated with the drilling of exploratory and delineation wells. The development activity has occurred at Norman Wells, Pointed Mountain, Beaver River and Kotaneelee. Only the former two are active. However, the Kotaneelee gas field could be back on stream in 1992 if a market for the gas is developed. The Beaver River field has watered out and has been abandoned. Substantial reserves of both oil and natural gas exist in the North, many of which could help meet Canada's energy needs in the future.

8.2.1.1 Current production, processing and refining

The Norman Wells oilfield, operated by Esso Resources Canada Limited, is one of the largest in Canada, with about 100 million m^3 of oil in place.

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* *Flow-through funding allowed investors to directly finance mining exploration in return for tax deductions and ownership in the company.*

* *Canada Lands are all those lands held by Her Majesty in right of Canada outside of an organized province. These lands are now referred to as Frontier Lands.*

Except for Panarctic Oil Ltd.'s small high arctic oil field Bent Horn, which produces for approximately 30 days each year, Norman Wells is the only Canadian oil field in regular production north of 60°. It produced about 1.7 million m^3 of oil and 138 million m^3 of gas in 1988. The only refinery north of 60° is at Norman Wells and is also operated by Esso Resources Canada Limited. The refinery output was 99,203 m^3 in 1988. Another 103,797 m^3 of heavy fuel oil (for which there is limited demand in the North) was shipped out by pipeline to Alberta.

Production at Norman Wells has increased approximately tenfold in the last few years because of an infill development drilling program, conversion of wells to injection to increase the recovery and maintain the production rates, expansion of the field processing facilities and the completion of an oil pipeline by Interprovincial Pipelines (NW) Ltd. The pipeline runs from Norman Wells to Zama, Alberta, where it connects with another pipeline to Edmonton, Alberta. (See Figure 9-1). Field construction on the oilfield expansion began in 1983 and on the pipeline in 1984. The $1.3 billion project was completed on schedule in March 1985. Production rates have been increased from 425 m^3 to 5000 m^3 of oil and natural gas liquids a day over the first five years of the project. The rate of production is expected to gradually decline starting in 1992.

The Norman Wells Water Flood Expansion Project has effectively increased the recovery rate to 40 per cent from the original expected recovery rate of 17 per cent. The Pointed Mountain field, located in the southwest sector of N.W.T. is the only commercially producing gas field in northern Canada. In 1988, the field's total production was approximately 154 million m^3.

In 1988, the petroleum industry spent $152.2 million on exploration development and production in Canada's North. (This includes mainland territories in the N.W.T. and Yukon, the Mackenzie Delta and Beaufort Sea and the Arctic Islands and Eastern Arctic Offshore areas.) The industry paid $4.9 million in royalties in 1988.

8.2.1.2 Acts and Regulations

Oil and gas activities are administered through the *Canada Petroleum Resources Act and Regulations*, and the *Canada Oil and Gas Production and Conservation Act and Regulations*.

Oil and gas rights in the North were formerly administered under the *Canada Oil and Gas Land Regulations* (pursuant to the *Territorial Lands Act* and *Public Lands Grants Act*). The Regulations authorized the issuance of exploration permits and oil and gas leases by application on previously unexplored Canada Lands and the disposition of previously explored lands returned to the Crown (Crown Reserves) by public tender. By 1972 exploration rights held by industry totalled some 182 million hectares, roughly 75 percent of the total area believed to be prospective. All disposals by public tender were suspended from 1969 to July 1979, when Dome Petroleum acquired an exploration agreement on 770,000 hectares in Viscount Melville Sound between Melville and Victoria islands. All other dispositions were suspended from mid-1972 to mid-1977, when the regulations amendments respecting the Petro-Canada preferential rights were promulgated. Petro-Canada ultimately acquired some 37,500,000 hectares of new exploration rights in the eastern Arctic, the interior (Mackenzie) Plains and the Arctic Islands.

The major holders of exploration rights in the North include Esso, Amoco, Gulf, Shell, Chevron, and Panarctic (roughly in order of net holdings). A characteristic of recent years is the concentration of exploration holdings in the more promising areas, representing a consolidation of activities following earlier, more widespread exploratory work in the early 1970s. Consequently, there has been more offshore exploration, especially in the Sverdrup Basin and the Beaufort Sea.

Proposed government regulations to be promulgated by the authority of the *Oil and Gas Production and Conservation Act* include the *Canada Oil and Gas Geophysical Regulations*, the *Canada Oil and Gas Offshore Pipeline Regulations*, the *Canada Oil and Gas Production and Conservation Regulations*, the *Canada Oil and Gas Installations Regulations* and the *Canada Oil and Gas Certificate of Fitness Regulations*. Each is responsible for specific management aspects. In addition, under the *Territorial Land Use Regulations*, all drilling operations and most exploration activities on land require a land use permit. Various conditions attached to these permits ensure sound land management and a minimum of disturbance to the environment.

Reference has already been made to the *Canada Oil and Gas Act*. This legislation was one of the major elements of the National Energy Program. Under this Act the Canadian ownership of production was required to be 50 per cent at the production stage including a reservation of a 25 per cent interest to the Crown in all rights granted. This Crown share of production could be assigned to a Crown corporation such as Petro-Canada or offered to Canadian companies through public tender. The Act required a basic royalty of 10 per cent and an additional royalty of up to 40 per cent of the net profits from production. To accelerate the exploration and development of frontier resources, the terms were shortened for replacement rights for existing oil and gas rights, and more stringent work requirements were demanded. Also introduced was an oil and gas rights management scheme based on exploration agreements for large exploration concession areas and production licences for individual fields.

As noted above, the National Energy Program began to be dismantled in 1984 with the introduction of the *Canada Petroleum Resources Act* and the Frontier Energy Policy. These initiatives reflected more reliance on market forces and less government intervention. The controversial 25 per cent Crown share was dropped and the royalty regime loosened to stimulate profits. The minimum basic royalty is a one per cent gross royalty to a maximum of five per cent in six years. After payout, the royalty rate is the greater of five per cent of gross revenues or 30 per cent of net operating revenues. Canadian ownership must be in excess of 50 per cent prior to issuing a production licence enabling production of hydrocarbons.

8.2.2 Oil and Gas Discoveries and Reserves

Hydrocarbon accumulations are found in porous, sedimentary rocks where appropriate trapping mechanisms occur. Nearly one-third of the area of the N.W.T. and Yukon is underlain by sedimentary rocks and theoretically capable, therefore, of containing hydrocarbons (Table 8-6). These rocks can be divided into thirteen hydrocarbon potential provinces (Figure 8-3). Although approximately 1,400 exploratory and development wells have been drilled in northern Canada, an overall appreciation of the hydrocarbon potential is possible only in general terms. Further drilling is required in certain areas before definitive statements can be made.

Bearing this in mind, the geological provinces with the greatest hydrocarbon potential are thought to be the Sverdrup Basin and the Mackenzie Delta-Beaufort Sea. (Figure 8-3). These are the areas in which a majority of the discovered oil and gas resources are located. In addition, limited amounts of hydrocarbons have been found in the Franklinian Geosyncline (oil at Bent Horn on southwest Cameron Island), on the Mackenzie Plain (oil at Norman Wells, N.W.T.), and in the Liard Plateau and Range (gas at Pointed Mountain, N.W.T. and at Kotaneelee, Yukon). Hydrocarbons in non-commercial amounts have been encountered in the Great Slave Plain, Eagle Plain, and Great Bear Plain areas. No hydrocarbon discoveries have yet been made in the Old Crow Basin, the Whitehorse Plain, and the Arctic Stable Platform.

Until 1981, details of drilling activities were summarized in *Oil and Gas Activities*, published annually by the Northern Oil and Gas Policy and Operations Coordination Division of Indian and Northern Affairs Canada, Ottawa. Since 1982, the annual report on the administration of Canada Oil and Gas Lands, published by COGLA, has detailed the oil and gas activities in the North.

COGLA regularly calculates and updates discovered oil and gas resources. The latest estimates indicate that liquid hydrocarbons from areas north of 60° make up approximately 28 per cent of Canada's marketable discovered resources. Natural gas north of 60° constitutes approximately 20 per cent.

COGLA also works closely with the Geological survey of Canada to estimate the undiscovered hydrocarbon potential of several basins north of 60°. The latest assessment, completed in late 1988, was of the Mackenzie Delta-Beaufort Sea area. These data estimate the probability of oil and gas in various regions. At a 50 per cent probability, northern Canada has approximately 40 per cent of Canada's ultimate potential oil resources, and 38 per cent of the ultimate gas resource. Most of northern Canada's discovered oil potential is in the Mackenzie Delta-Beaufort Sea; most discovered gas resources and undiscovered gas potential are in the Arctic Islands. (See Table 8-7.)

8.2.3 Recent Activities

8.2.3.1 Mainland Territories (Figure 8-4)

The mainland territories is the most heavily explored area north of 60°. Since the first well was drilled in 1921, 617 exploratory and 365 development wells have been drilled, resulting in 27 significant hydrocarbon discoveries. The first discovery, in the 1920s at Norman Wells is the most significant. Since then, many small gas pools have been discovered in the Great Slave Plain just north of the British Columbia-Alberta border. Several medium-sized gas pools were found in the Liard Plateau, including the currently producing Pointed Mountain gas field, and in the Great Bear Plain, north of Norman Wells. Three hydrocarbon discoveries were made in the Eagle Plains in the Yukon.

Drilling activity recovered in the early 1980s but declined in 1987 and 1988. Seventeen wells were completed in 1985; only three in 1988. This modest drilling level is expected to continue in the near future.

The Geological Survey of Canada indicates an average expectation of undiscovered resource potential in the mainland territories of 94 million m^3 of oil and 291 billion m^3 of gas.

Exploration rights for the Fort Good Hope area were issued under the *Canada Oil and Gas Act*, the first such issuance since the 1977 permits to Petro Canada. The Minister of Indian Affairs and Northern Development and representatives of Chevron Canada signed the Exploration Agreement, in Fort Good Hope on November 2, 1987. Chevron and the community entered into a joint-venture arrangement that includes local participation in managing exploration activities.

8.2.3.2 Mackenzie Delta-Beaufort Sea (Figure 8-4)

Land-based drilling and seismic activity peaked in 1973 when 83 wells and more than 51,000 km of seismic survey were completed for the N.W.T. and Yukon.

Many Canadian subsidiaries of large multinational oil companies undertook intensive exploration programs in the Mackenzie Delta in the early 1970s. Oil was first discovered in the Tuktoyaktuk Peninsula in 1969 by Imperial Oil Ltd. In 1971, large gas deposits were discovered in the Taglu area of Richards Island by Imperial Oil and in 1972 in the Parsons Lake area by Gulf Canada Ltd. In 1973, Shell Canada Ltd. made several oil and gas discoveries in the Niglingtak and Kugpik areas of the delta. The cancellation of the Mackenzie Valley Pipeline Project, after the report recommendations of the Mackenzie Valley Pipeline Inquiry (Berger Commission) in 1977, virtually all land-based drilling ended. However, activity increased between 1982 and 1986 with more exploration of the Tuktoyaktuk Peninsula.

Following the Pipeline Inquiry, exploration activity was concentrated in the Beaufort Sea. Using artificial drilling islands, Esso discovered oil at Adgo in 1974, at Issungnak in 1980, West Atkinson in 1982, Itiyok in 1983 and Nipterk in 1985. In deeper waters, Dome Petroleum undertook an ambitious exploration program using drillships. Between 1976 and 1980, Dome encountered oil at Nektoralik, Koakoak, Kopanoar, Ukalerk and Tarsiut locations. In intermediate waters, Gulf found oil at Pitsiulak and Amauligak. These wells were drilled from the company's caisson retained island, Molipaq. Several gas discoveries were also made in the offshore regions.

Because of falling world oil prices and the gradual withdrawal of Petroleum Incentive Program grants in the mid-1980s, the number of wells spudded decreased from a high of 19 in 1985 to 4 in 1988. All wells drilled in 1987 and 1988 were in the Beaufort Sea. In addition, three of the four wells drilled in 1988 were delineation wells to Gulf's large 1984 oil discovery at Amauligak. An extensive three-dimensional seismic survey was run over the giant Taglu gas field. In 1989, the National Energy Board approved applications by Esso, Shell and Gulf for licences to export 260 billion cubic metres or 9.2 trillion ft^3 of natural gas from their onshore and offshore fields with production to begin no earlier than 1996. The export permit is for a twenty year term with an anticipated daily production rate of 1.2 billion ft^3.

An assessment completed in mid-1988 by the Geological Survey of Canada, estimates undiscovered resources in this area at 835 million m^3 of oil and 1,588 billion m^3 of gas.

For the past several seasons, operators have extended the drilling season using caisson-retained islands or CRIs (such as Esso's CRI, the Dome-Gulf Tarsiut concrete caisson island and Gulf's Mobile Arctic Caisson), submersible platforms (such as Dome's Single Steel Drilling Caisson) and ice-resistant floating drilling platforms (BeauDril's Conical Drilling Unit). Gulf's two Class IV ice breakers have improved ice-combatting capability for these operations. Drilling operations are limited, however, by the requirement to drill relief wells during the drilling season. Nonetheless, technology is making it possible to drill in the harsh environment. Continuing policy reviews will consider the technological ability to work earlier and later in the season.

8.2.3.3 High Arctic (Figure 8-5)

Gas was first discovered in 1968 at Drake Point on the Sabine Peninsula of eastern Melville Island. In 1970 and 1971, two other gas discoveries were made: on King Christian Island and at Kristoffer Bay on Ellef Ringnes Island. In 1972, a second major gas field was discovered near Hecla on the west side of the Sabine Peninsula. The first oil to be discovered in the high Arctic was in the Bent Horn area of southwest Cameron Island in 1974.

Panarctic Oils Ltd., a consortium of companies, is the principal operator and contractor in the Arctic Islands. The federal government, through Petro-Canada, has a 53 per cent controlling interest in the consortium. Between 1975 and 1986, the consortium's exploration focused on delineating known onshore reserves through traditional drilling methods. It also focussed on developing offshore ice-platform drilling which would be used to delineate the offshore portions of known gas fields and to test other offshore geologic structures. New drilling technology evolved using modified land drilling rigs or rigs specifically designed for artificially thickened ice.

In 1976, the first large offshore geologic structure was drilled at Jackson Bay, and resulted in an important gas discovery. Between 1978 and 1980 other important gas discoveries were made at Whitefish, west of Lougheed Island. In early 1981, oil was discovered in three other wells east and west of Lougheed Island. In 1985 two significant hydrocarbon discoveries were tested at East Drake and Cape Allison.

In 1985, Panarctic Oils Ltd. installed production structures and facilities at its Bent Horn A-02 well on Cameron Island. During May and June, the well produced about 100,000 barrels of oil. On August 26, 1985 the crude was loaded from a storage tank into the Canadian bulk ore/oil vessel *MV Arctic*, destined for Petro-Canada's Montreal refinery.

This seasonal production scheme has continued, and in 1986 another 100,000 barrels was shipped out. Panarctic expanded the Bent Horn storage facilities in 1987 and from 1987 to 1989 two tanker loads of crude oil were transported from Bent Horn. Some crude oil was unloaded at Resolute and at the Polaris Mine on Little Cornwallis Island to replace diesel fuel.

In 1987, Panarctic drilled the Panarctic et al. F-72B well at Bent Horn in the hope of developing another production well. This well was plugged and abandoned as a dry hole. No wells were drilled in 1988 or 1989.

Exploration has resulted in 20 significant hydrocarbon discoveries. In addition, the Geological Survey of Canada indicates the undiscovered resource potential for this area is 2,257 billion m^3 of gas and 686 million m^3 of oil. Panarctic Oils is waiting for higher international oil prices and renewed partner interest in the Arctic Islands before it begins new exploration.

8.2.3.4 Eastern Arctic

In the mid-1970s, the petroleum industry was interested in exploring for hydrocarbons off the shore of the eastern Arctic, between Baffin Island and western Greenland. The oil and gas potential may be significant in several areas: the Thule Basin off Greenland, Lancaster Delta, Home Bay Delta, Cumberland Delta, Lancaster Sound and Jones Sound. Consolidex-Magnorth-Oakwood (CMO) and Petro-Canada are the major operators with interests in these areas.

Concern was expressed over how drilling might affect the marine environment. Before drilling was permitted, the federal government undertook a comprehensive scientific study of the marine environment under the Eastern Arctic Marine Environment Studies (EAMES) Program. The program was completed in southern regions in 1979. By late 1980, two wildcat wells were drilled south of Cape Dyer, one of which discovered gas. Very deep water, stormy conditions and floating icebergs make drilling difficult in this region. The program began studying the northern regions in 1980, after the Environmental Assessment and Review Panel (EARP) recommended a regional planning study for the Lancaster Sound area and rejected the application by Norlands et al. to drill a test well in the Dundas geologic structure. This study was completed in 1984. The Lancaster Sound Regional Land Use Planning Commission released a draft land-use plan for public review in February 1988 and presented final drafts to the Minister of Indian and Northern Affairs and the GNWT Government Leader in Iqaluit in February 1989. (See Section 8.3.3, Land Use Planning.)

8.3 Land Use and Environmental Concerns

The search for minerals, oil and gas and the planning of changes in land use in northern Canada has raised environmental and social concerns. A cornerstone of federal government policy has been that northern development will only be approved if reasonable effort is made to minimize the impact of such activity upon the environment, both biological and physical, and upon the native peoples. The Northern Mineral Policy (December 1986) set out policies on land use and environmental concerns. These policies include reviews of mine site rehabilitation practices, the boundaries of bird sanctuaries, utilization of the Thelon Game Sanctuary and the clarification of International Biological Program sites.

Various initiatives by the federal government promote environmental protection. Among the most important were the *Territorial Land Use Regulations* and the *Northern Inland Waters Act and Regulations*, passed in the early 1970s, and the *Canadian Environmental Protection Act* (1988), which sets out controls for toxic substances. Other initiatives include:

- the 1973 Cabinet decision that all federal programs, projects and activities have an environmental review and assessment early in the planning process;
- a 1984 order-in-council which clarified and increased government responsibilities in such assessments;
- holding government inquiries into the social and economic effects of major development proposals;
- undertaking baseline data collection studies involving both industry and government such as the Beaufort Sea studies, the Northern Oil and Gas Action Program (NOGAP) and the Environmental Studies Research Funds (ESRF);
- supporting research in the North through initiatives including the Environmental Studies Program; and
- the N.W.T. and Yukon Land Use Planning programs, which provide a framework for decision-making on resource activities, and for making the best use of the natural resources in Yukon and the N.W.T.

Regional Land Use Planning commissions have been established for Lancaster Sound, Beaufort Sea-Mackenzie Delta and the Mackenzie Valley (Denendeh) in the N.W.T., and Greater Kluane in Yukon. Pipeline routing will reflect land-use planning decisions. Environmental concerns include terrain disturbance, migration routes and spill controls.

8.3.1 Mines and Minerals

A number of specific land use and environmental issues are associated with mineral exploration and production. For example, with the rapid growth of placer mining in Yukon, the magnitude of concern for environmental impact has increased. Although most placer activities are small, an increasing number are large operations. Since placer mining is subject to the *Yukon Placer Mining Act* (1906), which takes precedence over the *Territorial Lands Act*, the *Territorial Land Use Regulations* (1971) do not apply to land staked under the *Yukon Placer Mining Act*. Environmental issues related to placer operations include the disturbance of large areas along river valleys, stream siltation and reduction of water quality, with its resulting downstream effects on fish and aquatic habitat.

In April 1988, after several years of discussion and debate, a new regime for placer mining, *The Yukon Fisheries Protection Authorization* was introduced. It was signed by the Minister of Indian Affairs and Northern Development, the Minister of the Environment and the Minister of Fisheries and Oceans. It prescribes four types of streams, the schedule of allowable discharges and compliance dates.

Unrangesellschaft Canada Ltd. (UG) is currently proposing an open-pit uranium mine near Baker Lake in the N.W.T. The project, proposed to be called Kiggavik, has been screened and reviewed by the department and the intergovernmental Regional Environmental Review Committee. The review recognized the potential for environmental damage and subsequent public concern. The Federal Environmental Assessment Review Office (FEARO) has been asked to conduct a site-specific review of the proposed uranium mine. Scoping workshops were held in the spring of 1989 to identify relevant concerns in order to assist the panel in developing guidelines for the environmental impact statement. Final public hearings are expected to be held in late 1991.

8.3.1.1 Granular Resources

Granular resources, such as gravel, sand and rock suitable for construction, are essential to northern development. High quality granular materials are in short supply in many northern regions and new sources are being sought. Managing these valuable and finite resources is necessary to ensure that known sources are effectively used and that remaining materials are conserved for future development. Managing granular resources effectively requires detailed inventories of existing supply, up-to-date forecasts of potential demands, management planning and appropriate legislation.

An inventory of granular resources is kept for roads and highways, artificial islands for offshore oil and gas production, and for community and other industrial needs. Past and present programs on the inventory include the Mackenzie Highway Study Group, the Northern Oil and Gas Action Program and the Inuvialuit Final Agreement Implementation. The inventory must occasionally be expanded and updated in response to new northern initiatives, revised demand forecasts and native land claims selections. In addition, the inventory must be current to provide useful information to the territorial governments and native organizations as part of transferring responsibility and implementing land claims settlements. Granular resource management plans will be prepared for several priority areas (Greater Kluane, Mackenzie Delta) in co-operation with local land-use planning groups. These plans aim to reduce conflicts among users; ensure the resource is equitably shared between public and private interests; encourage land restoration planning and rehabilitation to reduce environmental harm from exploiting granular resources. Draft regulations on territorial lands, public lands and pits and quarries are being evaluated and would replace

the existing *Territorial Quarrying Regulations*, under the *Territorial Lands Act*. These draft regulations deal more effectively with both onshore and offshore granular resources.

8.3.2 Oil and Gas

In the late 1960s, land use concerns related to seismic activity, especially in the Mackenzie Valley. Destruction of vegetation and the uncontrolled use of tracked vehicles in summer led to the meltout of ice-rich permafrost terrain and long-term physical damage to the land. Subsequent improvements in industry operating procedures and the strict application of the *Territorial Land Use Regulations* (e.g. restriction of cross-tundra vehicle movement to winter) have mitigated potential long-term damage to the land. Current terrain disturbance problems are restricted to localities such as borrow pits (excavations of granular resources), drilling waste fluid disposal sumps and emergency situations where the movement of heavy vehicles across the tundra in summer might be permitted.

Potential for the most serious environmental problems appears now to be related to the drilling operation itself (e.g., blow-outs) and the disposal of waste drilling fluids, which are sometimes toxic. For land-based drilling, the *Territorial Land Use Regulations* require that these fluids be buried in below-ground sumps which will freeze in place and be permanently contained within the permafrost. These procedures have met with only partial success and the regulatory agencies and industry are jointly seeking improved disposal methods and more efficient drilling procedures. With offshore drilling in the Beaufort Sea, concern relates to the difficulty of containing a sea-bottom blow-out, especially if it were to occur just prior to the shut-down of operations in the late autumn. The flow of hydrocarbons beneath the ice throughout the winter could cause irreversible damage to aquatic life and possibly destroy the sensitive marine ecosystem on which many native people depend for their livelihood. A number of oil spill and blow-out contingency measures have been prepared by both industry and government.

The hydrocarbons that have been discovered must now be transported to market. Markets are primarily in southern Canada and foreign countries. Small shipments of oil have been made from Bent Horn, and the Norman Wells pipeline has provided experience with northern pipelines.

Since 1985, the National Energy Board and northern agencies have monitored the environmental effects of building and operating pipelines. Construction-related environmental damage can now be reduced, and rehabilitation of the pipeline right-of-way has been largely successful. Operating the Norman Wells pipeline has not damaged the environment substantially. Contingency plans are in place in case of a pipeline break, and are tested to train personnel.

8.3.3 Land-Use Planning

In response to the federal government's 1981 policy on northern land-use planning, the Lancaster Sound Regional Planning Commission was established in September 1986, the Beaufort Sea-Mackenzie Delta Regional Planning Commission was established in June 1987, and the Denendeh Regional Land Use Planning Commission appointed in June, 1989. In October 1987, INAC and the Yukon territorial government agreed to proceed with land-use planning in Yukon. The Greater Kluane Regional Land Use Planning Commission was established in August 1988.

In the North, it is difficult to strike a balance between resource development, traditional land use and conservation. Therefore, all those affected must contribute to decisions on potential land use. A land-use plan reflects the values and priorities of affected groups and guides government, industry and local communities in determining and carrying out land use.

The primary purpose of land use planning is to protect and promote the well-being of the local residents and communities, as well as the interests of all Canadians. The land use planning commissions consult with local communities to identify their concerns and interests. The commissions also work with regional interest groups such as government, industry and other organizations to ensure a balanced approach to land use.

8.3.4 General Information on Environment Studies Research Fund

The Environmental Studies Research Funds (ESRF) are sources of funding for environmental and social studies deemed necessary for the exploration and development of oil and gas on Frontier Lands. There are two funds: the ESRF (INAC) addresses questions related to onshore and offshore activities in Canada's North, and the ESRF (EMR) concerns offshore activities in southern Canada. The ESRF Program is administered by the ESRF Office, Canada Oil and Gas Lands Administration (COGLA).

The funds operate principally on the basis of priority subjects identified annually by the ministers. Study proposals are invited to address the needs. Since its inception in 1983, the ESRF has funded work in the following priority subjects areas: waves, icebergs, sea bottom ice scour, social issues east, west and north, oil spill research and countermeasures, bottom sediment transport and effects monitoring. From 1985 to 1989 the ESRF published 106 peer-reviewed reports; the studies are valued at approximately $15 million. Many are relevant to northern areas.

The funds are replenished through levies on the oil and gas interest owners and administered through a Management Board with representation from the federal government, the oil and gas industry, the regional petroleum boards and the general public. All interest holders share equitably in the cost of ESRF studies.

Anyone or any organization interested in and capable of doing the required studies, may submit proposals to the Fund. To date individual experts or members of organizations such as consulting companies, universities, private interest groups, oil and gas companies and federal and provincial government agencies have participated. Calls for study proposals are published regularly in the ESRF newsletter, "*Update*". Copies of "*Update*" as well as general information on

the ESRF can be obtained by writing the ESRF Manager. The address is:

Environmental Studies Research Fund
355 River Road
Tower B — 16th Floor
Ottawa, Ontario
K1A 0E4
(613) 991-1984

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Table 8-1

Lands Staked for Mining Purposes, Yukon and the N.W.T.

Territory	Mining Districts/Geological Area	1986	1987	1988	1989
			(thousands of hectares)		
YUKON	Watson Lake Mining District*				
	Quartz Claims (Hard Rock)	55.3	74.3	62.3	23.4
	Placer Claims & Leases	0.4	2.2	0.5	2.7
	Whitehorse Mining District*				
	Quartz Claims (Hard Rock)	52.1	126.6	81.2	50.8
	Placer Claims & Leases	10.8	2.1	19.0	16.9
	Mayo Mining District*				
	Quartz Claims (Hard Rock)	6.5	11.8	18.3	9.5
	Placer Claims & Leases	5.5	7.7	5.6	3.5
	Dawson Mining District*				
	Quartz Claims	11.9	51.5	53.4	13.5
	Placer Claims & Leases	34.1	64.6	64.1	51.7
	Total:	176.6	361.8	304.4	172.0
N.W.T.	Arctic Islands Geological Area	1.0	—	—	15.4
	Keewatin Geological Area	71.9	88.9	260.6	139.3
	SE Mackenzie Geological Area	1.0	1.9	22.0	1.9
	Slave Geological Area	209.5	372.4	423.5	203.8
	East Arm Geological Area	5.7	0.6	23.6	0.0
	Bear Geological Area	67.2	67.1	12.7	6.5
	Interior Platform Geological Area	67.2	0.2	—	19.2
	Cordillera Geological Area	—	0.8	1.8	23.4
	Total:	423.5	531.9	744.2	409.5
	Yukon and the N.W.T. TOTAL:	600.1	893.7	1,048.6	581.5

Source : DIAND, Mineral Resources, Whitehorse.
DIAND, Mineral Resources and Economic Analysis, Yellowknife.

Notes : All stakings in the N.W.T. are quartz. A staking may attain 1,045.1 ha.
A quartz claim is 20.9 ha; a placer claim 9.30 ha; a placer lease 294.4 ha.
A lease is staked for exploration purposes only.

* Hectares of land were derived from the number of stakings recorded in each mining district. In Yukon, size of placer claims and leases are often less than the established claim limits. Best estimates were used to adjust the number of hectares of land under claim and lease.

Table 8-2

Mineral Production — 1979-1989

Yukon Territory

Mineral		1979	1980	1981	1982	1983	1984	1985	1986	1987	1988(R)	1989(P)
Gold	$	13 749 271	63 029 000	66 382 000	39 721 000	50 337 000	44 419 000	42 689 000	58 237 000	88 970 000	87 386 100	80 504 000
	kg	1 190	2 982	3 746	2 656	3 006	2 960	3 065	3 547	4 674	5 052	5 551
Silver	$	54 218 064	114 120 000	32 339 000	29 943 000	6 891 000	18 825 000	13 098 000	18 468 000	40 965 000	42 593 000	13 384 000
	kg	129 982	147 000	80 000	95 000	15 000	54 000	47 000	73 000	133 000	159 000	64 000
Lead	$	103 374 279	71 558 000	54 935 000	25 733 000	307 000	1 539 000	848 000	23 893 000	105 982 000	118 696 000	
	kg	78 250 062	65 771 000	55 970 000	35 493 000	520 000	2 083 000	1 470 000	35 091 000	100 267 000	117 058 000	(X)
Copper	$	18 422 058	27 082 000	20 123 000	14 654 000	3 977 000	19 000	13 000	22 000	(X)	(X)	
	kg	7 778 231	10 433 000	9 094 000	7 510 000	1 904 000	10 000	6 000	9 000			
Zinc	$	109 460 866	88 313 000	94 237 000	58 519 000	31 000	244 000	137 000	61 521 000	187 336 000	237 932 000	341 649 000
	kg	113 572 783	90 938 000	78 806 000	54 537 000	27 000	173 000	109 000	50 634 000	147 045 000	143 939 000	158 024 000
Bismuth	$						2 000	11 000	5 000	2 000	2 000	3 000
	kg						162	1 000	541			
Cadmium	$					6 000	9 000	5 000	8 000	13 000	62 000	93 000
	kg					2 000	2 000	1 000	2 000	2 000	3 000	6 000
Asbestos	$											
	kg											
Sand and Gravel	$				550 000	1 438 000	5 105 000	2 995 000	13 355 000	1 502 000	5 184 000	5 422 000
	t				463 000	480 000	3 074 000	1 185 000	4 902 000	352 000	2 240 000	2 252 000
Sulphur (smelter gas)	$							267 000	1 000	156 000	183 000	
	t							2 000	7	1 000	2 000	
Coal (E)	$	363 000	287 000	368 000					209 000	400 000		
	t	23 003	16 529	20 860					17 233	20 000		
TOTAL	$	299 244 538	364 389 000	268 016 000	169 120 000	62 987 000	70 143 000	60 069 000	175 710 000	425 348 000	492 199 000	539 880 000

Source : Statistics Canada. *General Review of the Mineral Industries, Mines, Quarries and Oil Wells* (Catalogue No. 26-201).
Statistics Canada. *Canadian Mineral Production, Preliminary Estimates* (Catalogue No. 26-202).
(P) Preliminary Figures, (R) Revised Figures, (E) Estimated, (t) metric tonnes, (X) Confidential

Note: Total mineral value for 1988 and 1989 includes confidential and other minor mineral values

Table 8-3

Mineral Production of Operating Mines in the Yukon, 1986, 1987, 1988 and 1989 and Employment, 1989

Company Mine and Commodity	1986		1987(R)		1988		1989(P)		Number of Employees
	t	kg	t	kg	t	kg	t	kg	
Curragh Resources Corp.									
Faro Mine									508
zinc	62 951		226 266		19 775		176 832		
lead	38 204		149 285		14 700		108 144		
silver		42 753		177 025		21 405		95 428	
Dawson Eldorado Mines Ltd.									
Plata-Inca									
silver		1 244		857					
lead	N/A		48.4						
zinc	N/A		4.6						
Nadahini Mining Corporation									
Whiskey Lake Mine									5
coal	17 233		20 000		10 000		40 000		
Mount Skukum Gold Mining Corp.									
Mount Skukum Mine									
gold		933		1 379		171			
silver		715		1 068					
United Keno Hill Mines Ltd.									
Elsa area mines									
silver		53 187		46 437		48 987			
lead	1 355		1 605		2 928				
zinc	66		385		295				
Whitehorse Coal Corporation									
Whitehorse Coal Mine									
coal	1 800				2 721				
Canamax Resources Inc.									
Ketza River Mine									131
gold						635		1 216	
silver						7		75	
TOTAL									644

Source : Department of Indian Affairs and Northern Development. These figures are those reported by the mines as production and will not match Statistics Canada's production figures which are based on metals sold or shipped).

N/A : Not Available

(P) : Preliminary

(R) : Revised

Table 8-4

Mineral Production of Operating Mines in the Northwest Territories, 1986, 1987, 1988 and 1989 and Employment, 1989

Company, Mine and Commodity	1986		1987(R)		1988		1989(P)		Number of Employees
	t	kg	t	kg	t	kg	t	kg	
Cominco Ltd.									
Polaris Mine									252
zinc	114 000		129 000		134 860		141 332		
lead	25 000		27 000		34 275		31 340		
Echo Bay Mines Ltd.									
Lupin Mine									410
gold		6 009		6 006		6 297		6 007	
silver		995		882		1 018		992	
Giant Yellowknife Mines Ltd.									
Giant Mine									362
gold		1 993		2 382		2 224		4 123	
silver		767				561		1 149	
arsenic trioxide	405.5		N/A						
Giant Yellowknife Mines Ltd.									
Salmita Mine									
gold		1 529		545					
silver		247		114					
Nanisivik Mines Ltd.									
Nanisivik Mine									207
zinc	60 241		57 900		63 100		57 840		
lead	3 528		2 500		1 000		2 511		
silver		25 372		23 000		22 200		16 614	
Nerco Con Mine Ltd.									
Con Mine									367
gold		2 777		2 576		2 425		2 787	
silver		574		622		485		557	
arsenic trioxide									
Pine Point Mines Ltd.									
Pine Point Mine									
zinc	238 625		287 683		13 300				
lead	109 815		114 185		1 100				
Treminco Resources Ltd.									
Ptarmigan Mine									45
gold		72		102.2		540		432	
silver				10					
TOTAL									1 643

Source : Department of Indian Affairs and Northern Development. These figures are those reported by the mines as production and will not match Statistics Canada's production figure which are based on metals sold or shipped.

N/A : Not available

(P) : Preliminary

(R) : Revised

Table 8-5

Mineral Production — 1979-1989

Northwest Territories

Mineral			1979	1980	1981	1982	1983	1984	1985	1986	1987	1988(R)	1989(P)
Gold	$		61 868 488	96 920 000	85 495 000	91 415 000	144 570 000	191 071 000	177 079 000	205 266 000	223 456 000	205 503 000	174 770 000
	kg		5 356	4 209	4 825	6 113	8 634	12 732	12 713	12 503	11 740	11 880	12 051
Silver	$		34 770 651	41 331 000	13 456 000	16 073 000	33 743 000	20 361 000	9 083 000	5 478 000	4 006 000	6 923 000	4 250 000
	kg		83 358	53 000	33 000	51 000	74 000	59 000	33 000	22 000	13 000	26 000	20 000
Copper	$		941 732	679 000	613 000	419 000	214 000	130 000	46 000	1 000	4 000	3 000	3 000
	kg		397 191	262 000	277 000	215 000	102 000	69 000	23 000	1 000	2 000	1 000	1 000
Lead	$		80 117 935	55 853 000	44 680 000	46 367 000	47 901 000	66 647 000	44 489 000	91 129 000	139 370 000	52 223 000	38 998 000
	kg		60 645 969	51 337 000	45 522 000	63 955 000	81 161 000	90 198 000	77 083 000	133 836 000	131 754 000	51 502 000	37 426 000
Zinc	$		205 600 051	172 556 000	159 764 000	229 110 000	269 951 000	386 813 000	356 415 000	322 064 000	328 781 000	537 756 600	728 401 000
	kg		213 323 454	175 685 000	133 604 000	213 523 000	234 883 000	274 920 000	284 223 000	265 073 000	258 070 000	325 321 000	336 911 000
Cadmium	$												
	kg						10 000	1 034 000	866 000	670 000	501 000	3 172 000	4 410 000
							3 000	214 000	238 000	175 000	86 000	166 000	269 000
Bismuth	$						163 000	34 000	60 000				
	kg						32 000	3 000	3 000				
Tungsten	$		52 924 000	67 646 000	43 363 000	38 353 000	11 221 000	33 584 000	38 918 000	17 363 000			
Trioxide(E)	kg	3 254 067	4 007 000	2 515 000	2 925 000	1 126 000	3 112 000	3 529 000	2 470 000				
Arsenious	$				561 000	3 862 000	2 345 000	5 837 000	1 969 000	254 000	666 000	2 366 000	1 248 000
Trioxide(E)	t				1 094	1 780	982	4 684	4 098	406			
Sulphur	$								11 665 000	21 788 000	6 912 000	7 286 000	2 069 000
(smelter gas)	t								98 000	147 000	59 000	73 000	21 000
Sand	$					41 482 000	32 479 000	36 323 000	8 981 000	3 281 000	8 132 000	10 966 000	10 841 000
and Gravel	t					6 625 000	5 905 000	7 249 000	6 803 000	986 000	2 182 000	2 443 000	2 182 000
Stone	$					1 268 000	14 601 000	4 617 000	434 000	1 011 000	1 486 000	232 000	622 000
	t					323 000	2 409 000	729 000	163 000	368 000	472 000	108 000	172 000
TOTAL	$		436 222 857	434 985 000	347 841 000	468 349 000	557 198 000	746 451 000	649 732 000	668 452 000	713 314 000	826 430 000	965 612 000

Source: Statistics Canada. *General Review of the Mineral Industries, Mines, Quarries and Oil Wells* (Catalogue No. 26-201).
Statistics Canada. *Canadian Mineral Production, Preliminary Estimates* (Catalogue No. 26-202).
(P) Preliminary Figures, (R) Revised Figures, (E) Estimated, (t) metric tonnes

Table 8-6

Total area and volume of sedimentary rocks in Yukon, N.W.T. and the western provinces of Canada

Region	Total Area (km^2 x 1000)	Volume of Sediments (km^3 x 1000)
Yukon and Northwest Territories Mainland*	1 402	1 755
Arctic Archipelago**	1 670	5 314
Manitoba and Saskatchewan	570	688
Alberta	582	1 390
British Columbia	359	1 242
	4 583	10 389

* Includes Beaufort Sea
** Includes Arctic Stable Platform but not Beaufort Sea
Source: Geological Survey of Canada

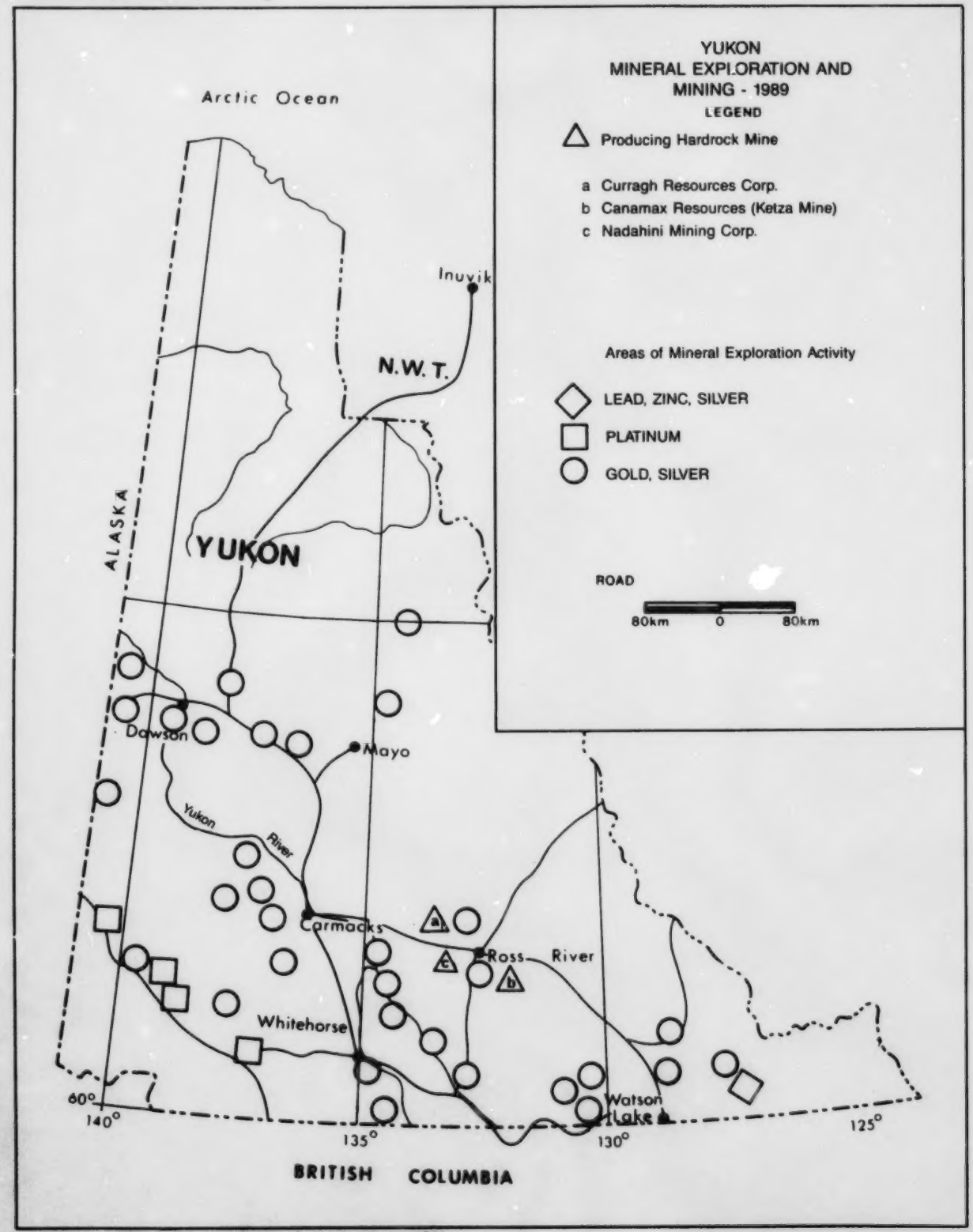
Table 8-7

Northern Canada's Petroleum Resource Endowment

Region	Gas (TCF)	Oil (Bbls)
Arctic Islands		
Discovered	15	0.5
Potential	78	4.3
Mackenzie Delta-Beaufort Sea		
Discovered	11.7	1.7
Potential	56.3	5.3
Mainland		
Discovered	0.7	0.2
Potential	10.3	0.4
TOTAL		
Discovered	27.4	2.4
Potential	144.6	10.0

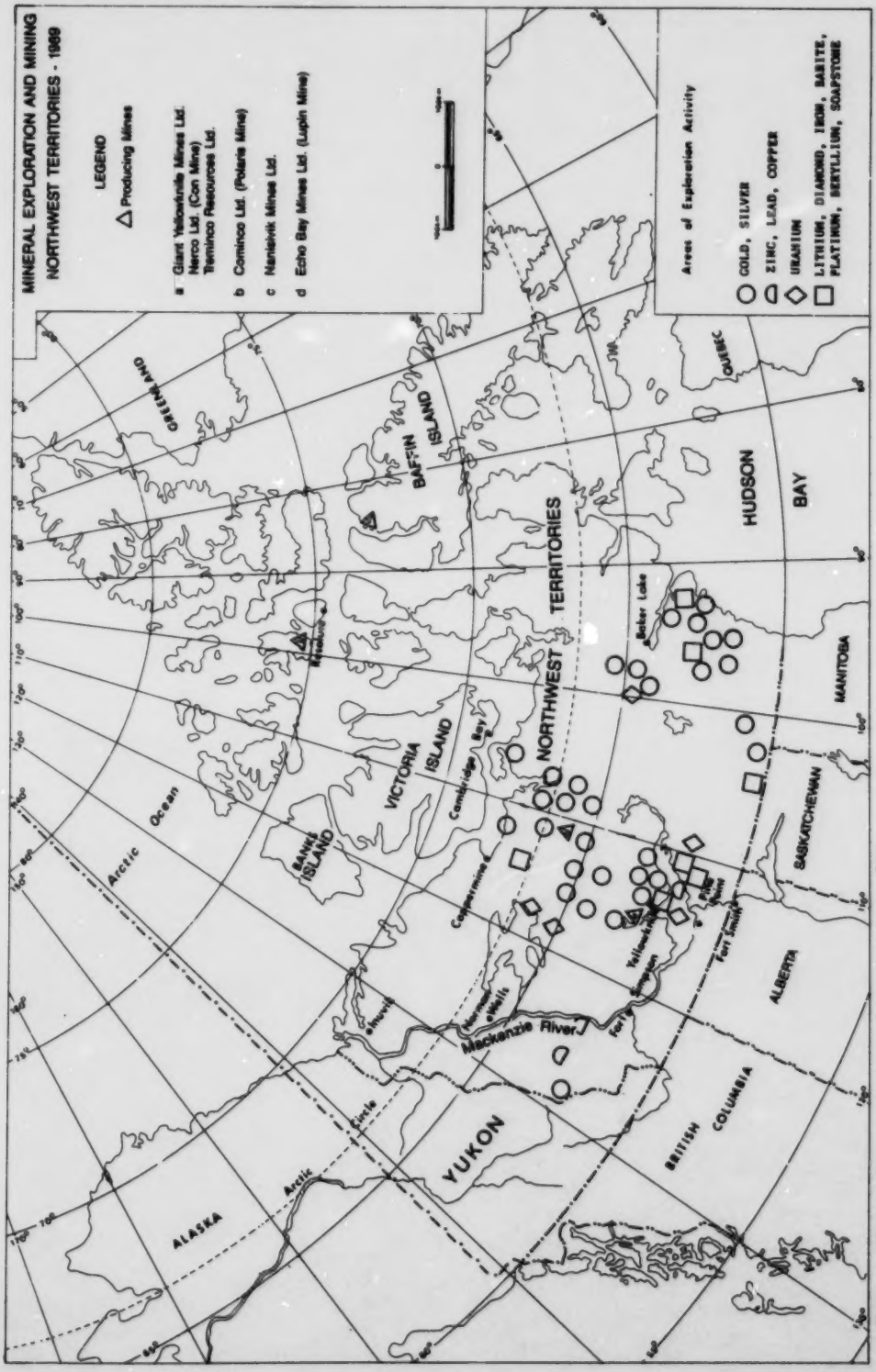
Source: Richard M. Procter, "The Petroleum Resources of Northern Canada" P. 81, 82
Canada Oil and Gas Lands Administration

Figure 8-1
Mineral Exploration and Mining

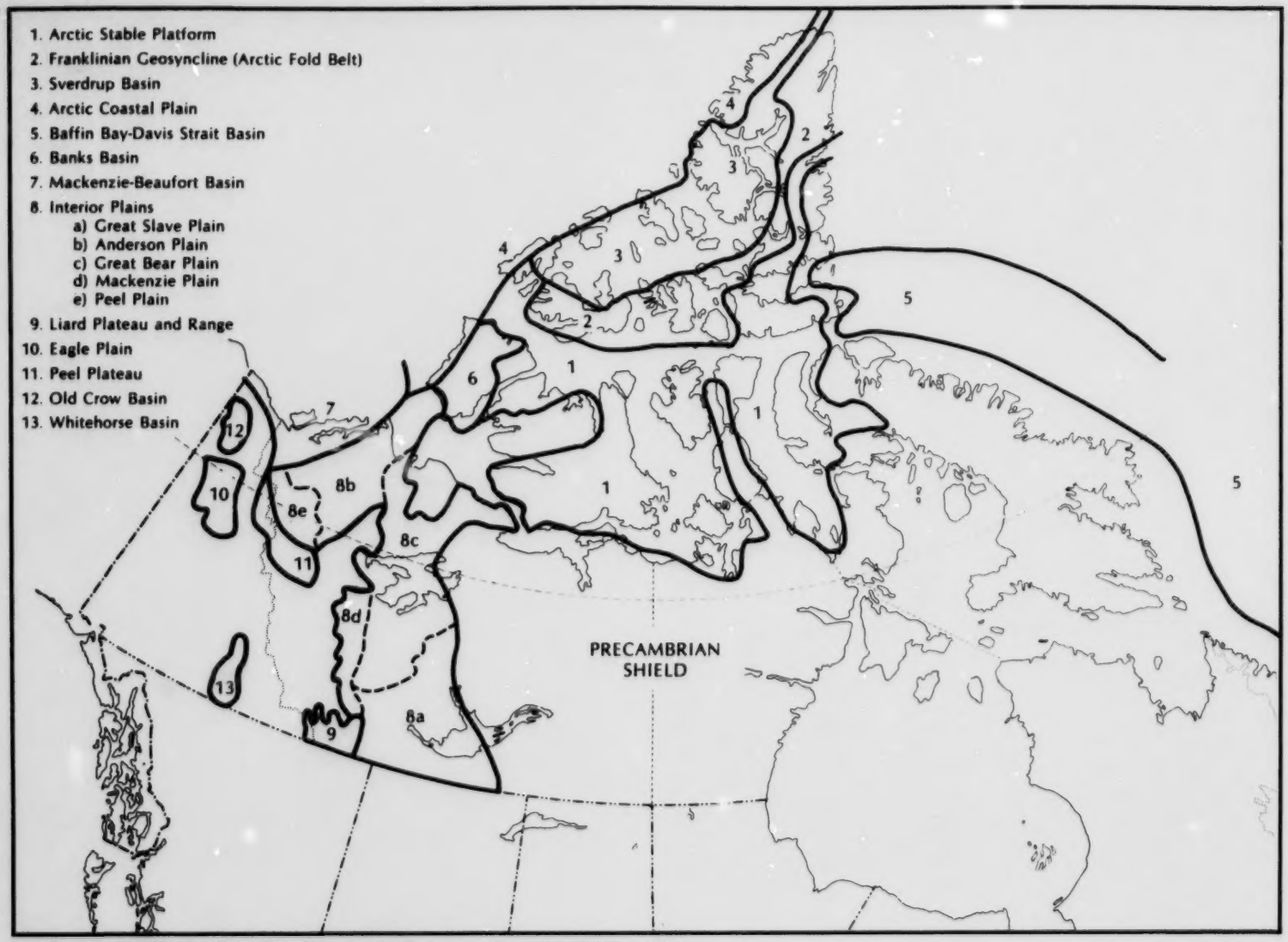


Source: DIAND, Mines and Mineral Activities, 1988

Figure 8-2
Mineral Exploration and Mining in the Northwest Territories



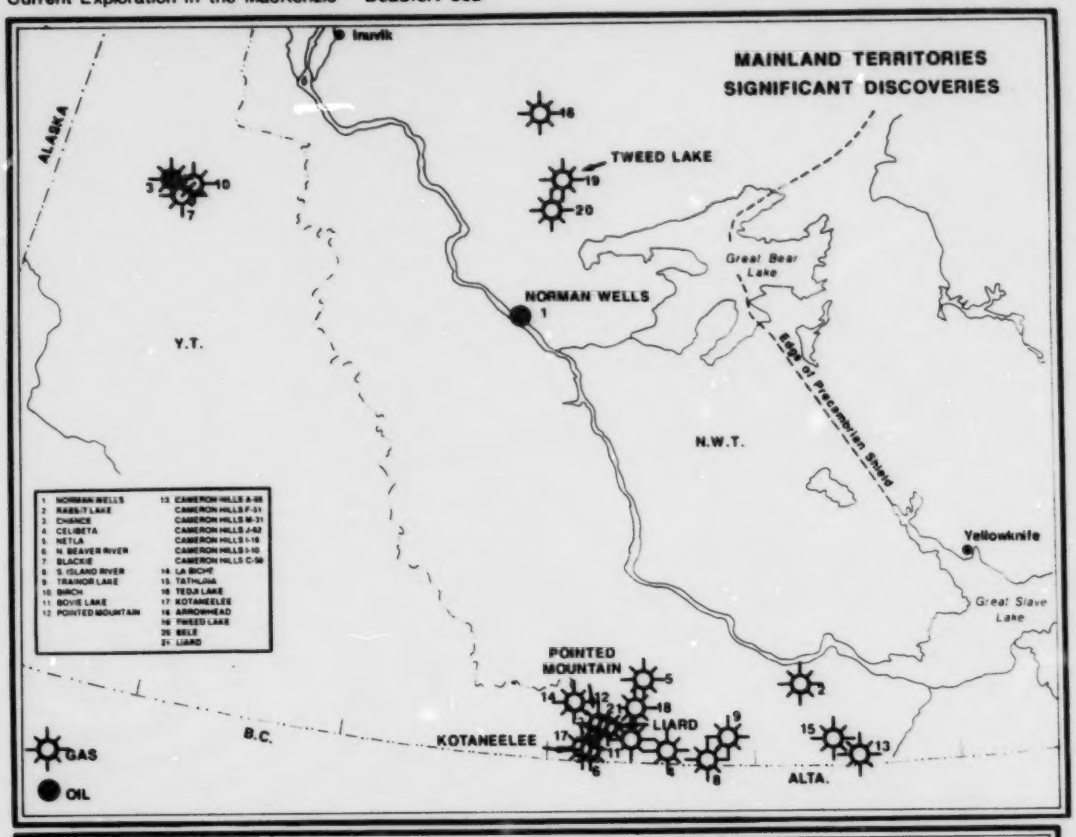
Source: DIAND, Mines and Mineral Activities, 1988

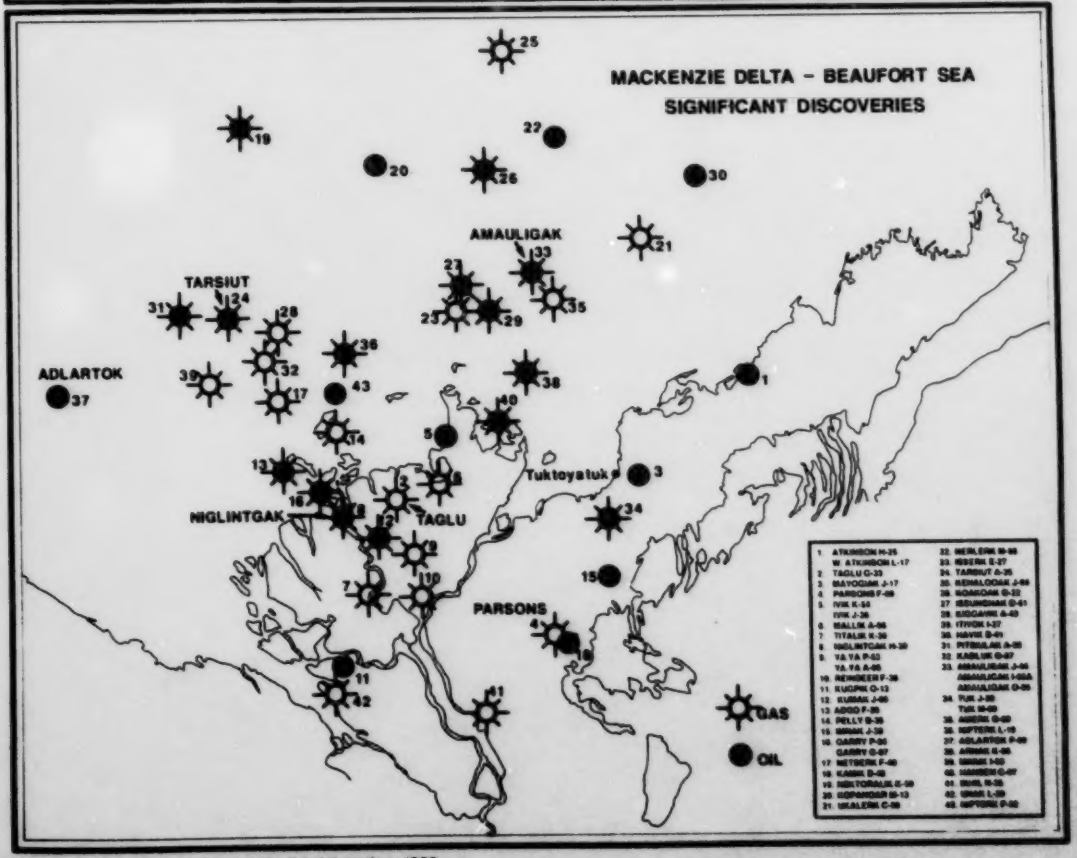


Source: DIAND, Northern Non-Renewable Resource Branch, 1980, modified

Figure 8-3
Location of Hydrocarbon Potential Geological Provinces

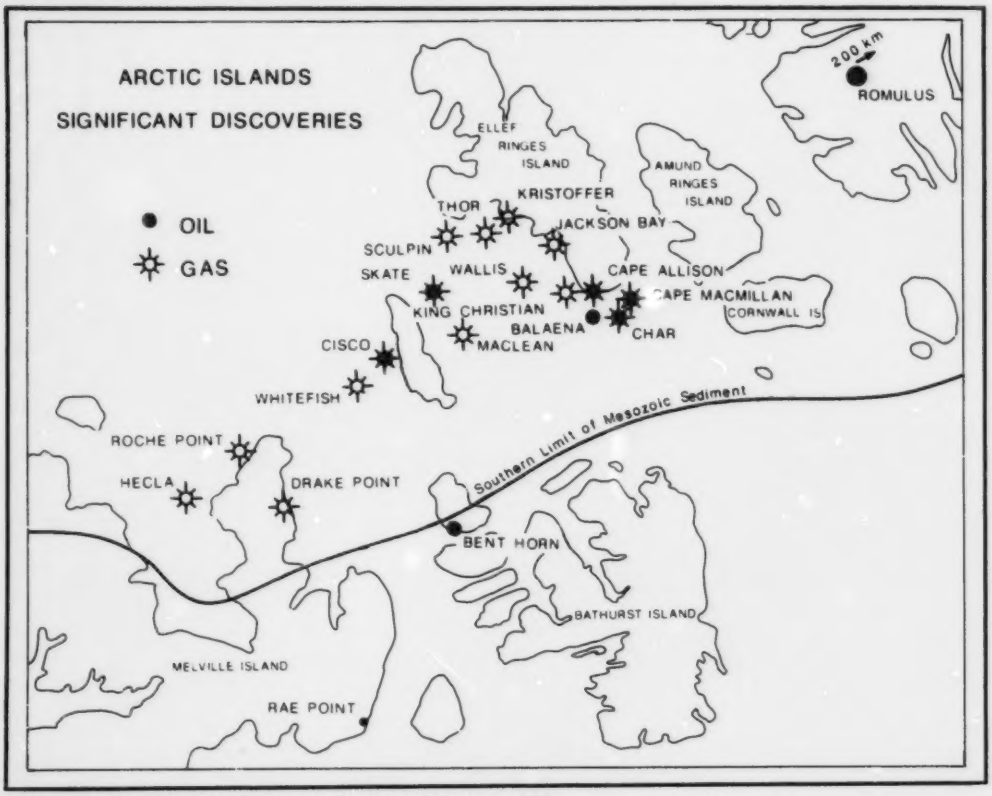
Figure 8-4
Current Exploration in the MacKenzie – Beaufort Sea





Source: Canada Oil and Gas Lands Administration, 1989

Figure 8-5
Current Exploration in the Arctic Islands



Source: Canada Oil and Gas Lands Administration, 1989

9.0 Northern Hydrocarbon Transportation

9.1 General

Several solutions have been suggested to address the problems of bringing gas and oil from the Arctic to markets in southern Canada and the United States. Pipelines are practical under northern conditions for overland or short marine routes. However, pipelines can present many problems in crossing large stretches of ice-laden ocean in particular where bottom scour by icebergs occurs. The only alternative to pipelines in marine areas is icebreaking tankers carrying liquefied natural gas or oil, although air ships and cargo carrying submarines have also been studied, as has conversion of LNG to methanol (in situ). With all those methods, costs are always a factor to be considered.

For overland routes a pipeline is probably the cheapest solution. The total cost is still immense, as shown in the estimates for various proposals that follow.

9.2 Current Pipelines

As of 1989, the North had three operating pipelines: Norman Wells pipeline, the Yukon Pipeline and Pointed Mountain gas pipeline.

9.2.1 Norman Wells Oilfield Expansion and Pipeline

Project: Combined oilfield expansion of the existing development at Norman Wells, N.W.T. from 477 m^3/day to 4,800 m^3/day of oil, and construction of a 324 mm, 869 km buried pipeline from Norman Wells south along the east side of the Mackenzie River to connect with the Rainbow pipeline at Zama, Alberta.

Ownership: Esso Resources Canada Ltd. (field); Interprovincial Pipe Line (NW) Ltd. (pipeline)
Field expansion application filed February 29, 1980

Recoverable Reserves of Oil:
Current: 16 million m^3
Projected: 40 million m^3

Life of Project:
Current: 23 years
Projected: 35 years

Number of Wells:
Current: 158 active producing wells
Projected: 152 active water-injection wells

Estimated Cost:
Field Development: $612 million
Pipeline Construction: $360 million
Operating: $14.3 million annually over first five years

Markets: Southern Canada

Public Review: Pipeline application filed March 14, 1980
Environmental Assessment Panel Report released by FEARO January, 1981
NEB Reasons for Decision (OC-35) released March 1981
DIAND decision recommending approval of project released July 30, 1981

Facilities:
Length: 869 km (753 km in Northwest Territories)
Diameter: 324 mm outside, 318 mm inside
Right of way: 20 m

System Capacity:
Initial: 5,000 m^3/day of oil
Operational: 7,150 m^3/day of oil
Potential: 7,200 m^3/day of oil with additional pumping
Start up: April 17, 1985
Pumping Stations: 3 pumping stations constructed
kilometre-post 0 — Norman Wells
kilometre-post 336 — Wrigley
kilometre-post 585 — Fort Simpson

Oil and Gas Production:

Year	*Oil (thousands of m^3)*	*Gas (millions of m^3)*
1983	157	46
1984	175	41
1985	105	199
1986	1,411	176
1987	1,534	164
1988	1,734	137

9.2.2 Yukon Pipeline

Project: A 4" steel pipeline from Skagway, Alaska to Whitehorse, Yukon Territory that transport various fuels to the Yukon. Also known as "Canol No. 2".

Ownership: White Pass and Yukon Corporation Ltd.

Markets: — Whitehorse, Yukon Territory
— Stove and furnace oil, diesel fuel, aviation gas, petroleum
— batch lots as required
Constructed by US Army 1940s;
Certified by National Energy Board, Certificate, OC-12 May, 1962

Facilities:

Length: 146 km (Canada)
31 km (USA)

Diameter: 114.3 mm outside
6 mm wall thickness

Right of way: Nil (generally in railway right-of-way)

Operating Capacity: Varies with product (50% stove oil) rated at 3,300 m^3/day (furnace oil)

Operating pressure: — 8,274 kPa (kilopascal) at Skagway
— 70 kPa at Whitehorse

Pumping Stations: One — Skagway, Alaska

9.2.3 Pointed Mountain

Project: A gas-gathering line originating in the Yukon Territory and Northwest Territories, and extending to Beaver River, British Columbia where it connects with the Beaver River gathering line to the Fort Nelson gas processing plant at Fort Nelson, British Columbia.

Ownership: West Coast Energy Inc. (formerly Westcoast Transmission Company Ltd.)

Life of Project: 4 — 5 years

Number of Wells: 2 wells currently in production (Amoco)

Markets: Southern Canada
Constructed 1972
GC-46 certificate issued January 18, 1972

Facilities:

Length: 55 km in Yukon Territory and Northwest Territories

Diameter: 508 mm
9.27 mm wall thickness

System Capacity: A gathering line; part of the gathering system for sour gas, treated at the Fort Nelson plant
Maximum pressure 9,308 kPa

Gas Production:

Year	*Gas (millions of m^3)*
1983	181
1984	194
1985	226
1986	205
1987	156
1988	154

9.3 Proposed Pipelines

Plans for four other pipelines are at various stages of design, regulatory review or awaiting developments that would permit financing. However, only one of the proposed options will be built. Detailed information on these proposed pipelines follows. The map (Figure 9-1) shows the locations of the current and proposed pipelines.

The National Energy Board has not received an application but the construction of an oil pipeline between the Mackenzie Delta and Norman Wells is also probable.

9.3.1 Alaska Natural Gas Transmission System (ANGTS)

Proposal: To transport annual gas from Prudhoe Bay, Alaska to the lower 48 states and to allow further access to Canadian gas in the Mackenzie Delta through an interconnecting Dempster Lateral pipeline

Proponent: Foothills Pipe Lines Ltd. (formerly Foothills Pipe Lines (Yukon) Ltd.) for Canadian portion

Sponsors: NOVA (formerly Alberta Gas Trunk Line) and Westcoast Energy Inc. (formerly Westcoast Transmission Company Ltd.)
Subsidiaries: five companies — one for each segment in Canada

Application Filed: August 1976 (NEB)

Approved: National Energy Board Reasons for Decision Published June 1977. On 20 September 1977 under Section 20 of the *Northern Pipeline Act*, a Certificate of Public Convenience and Necessity in respect of the Alaska Natural Gas Transport System was declaared to be issued to the Consortium. The Certificate was also deemed to be a certificate issued pursuant to Section 52 of the *National Energy Board Act*. The Northern Pipeline Agency was created by the *Northern Pipeline Act* passed on 12 April 1978. The Northern Pipeline Agency has the responsibility to oversee the design and construction of the pipeline and to ensure appropriate environmental and socio-economic procedures are adopted and implemented.

Source: Prudhoe Bay, Alaska gas, with provision to receive gas from the Mackenzie Delta via another pipeline.

Markets: United States

Facilities: Total Length of pipeline project 7,287 km including:
- Alaska — 1,196 km
- Yukon — 828 km
- Northern British Columbia — 715 km
- Southern British Columbia — 710 km
- Alberta — 1,313 km
- Saskatchewan — 259 km
- Lower United States — 2,806 km

System Capacity: A total of 43 compressor stations would be built, including
- Alaska — 7
- Yukon — 5
- British Columbia (North) — 4
- British Columbia (South) — 1
- Alberta — 8
- Saskatchewan — 4
- Lower United States — 14

US gas: 68 million m^3/day
Canadian gas: 34 million m^3/day
Total: 102 million m^3/day

Estimated Cost (Canadian portion): $8.4 billion US (1980 dollars) 1988 — revised downward by 40% because of changes in scope and technology, and the adoption of higher pressure 1,220 mm diameter design.

Projected Completion: Phase 1 United States (known as the Canadian Prebuild) from Caroline, Alberta to US markets, at Kingsgate, British Columbia (Western Leg) and Monchy (Eastern Leg), Saskatchewan was completed in September 1982 to export Canadian gas. The Western Leg comprises 124 km of pipeline loop along the Alberta National Gas Company Ltd (ANG) system. The compression requirements are provided by the existing ANG stations. The Eastern Leg comprises 635.1 km of pipeline and 5 compressor stations. No schedule has been set for completing the pipeline because of uncertainties in market conditions, financing and related economic factors.

9.3.1.1 Yukon Segment (part of the Alaska Natural Gas Transmission System)

Proponent: Foothills Pipeline Ltd. (formerly Foothills Pipeline Yukon Ltd.)

Facilities: 829 km of Pipeline

Length/Diameter: 377 km of 121.9 cm diameter, 451 km of 142.2 cm diameter

System capacity: 68 million m^3/day

Compressor Stations: Five initially; four additional if Dempster Lateral is constructed. Compressor stations would be equally spaced along the line

Administration: Administration information is based on the Company's 1980 projections.

Work camps: Three for pipeline plus compressor stations

Operating and maintenance offices: Whitehorse, plus four service centres located in Beaver Creek, Haines Junction, Teslin and Watson Lake.

Workforce Requirements:

Construction: Peak of approximately 3,500 people

Operation: Approximately 200 persons with 112 working in Whitehorse.

Public Review: Environmental Impact Statement filed 30 August 1976 NEB decision released June 1977 conditionally approving the project. Alaska Highway Pipeline Inquiry (Lysyk, Bohmer, Phelps) Panel reported July 1977; Environmental Assessment Review Panel (EARP) (Hill) Panel hearings in 1977; Environmental Impact Statement filed in 1979; EARP (Hurtubise) Panel hearings in 1979; Northern Pipeline Agency hearings on draft environmental and socio-economic terms and conditions in 1979; EARP (Cotterill) Panel hearings in 1981; EARP (Robinson) Panel hearings in 1982

9.3.2 Dempster Lateral

Proposal: To construct a buried gas pipeline from Richards Island in the Mackenzie Delta along the Dempster and Klondike highways to connect with the ANGTS pipeline near Whitehorse.

Proponent: Foothills Pipe Lines Ltd. (formerly Foothills Pipe Lines (Yukon) Ltd.).

Sponsors: NOVA (formerly Alberta Gas Trunk Line Company Ltd.) and Westcoast Energy Inc. (formerly Westcoast Transmission Company Ltd.).

Application Filed: June 29, 1979 (NEB)

Source: Mackenzie Delta gas fields
— Niglintgak
— Parsons Lake, and
— Taglu

Markets: Initially for export to the United States; then southern Canada

Facilities:

Length/Diameter: 1,189 km of 87 cm diameter pipe

System Capacity: Four compressor stations initially with 4 additional stations required to bring system to full volume.

Initial: 22.5 million m^3/day

Operational: 34 million m^3/day

Ultimate: 42.5 million m^3/day

Compressor Stations: Four initially, eight when system at full volume
Locations: 121-153 km apart

Estimated Cost: $2.48 billion (1978 dollars)

Projected Start-up: After approval and completion of the ANGTS

Workforce Requirements:

(jobs/year):

Construction: 220-3260

Operation: 105

Estimated Reserves:

Discovered: 302.1 billion m^3 (Mackenzie Delta)

Available for sale: 238.2 billion m^3 (Mackenzie Delta)

Public Review: Referred to Federal Environment Assessment and Review Office January 1978; review panel formed; environmental statement filed June 29, 1979; Socio-economic statement filed August 1979 Planning public hearings will depend on project scheduling

Communities affected: Inuvik, Arctic Red River, Fort McPherson, Dawson City, Stewart Crossing, Pelly Crossing, Carmacks, Whitehorse

9.3.3 Polar Gas Pipeline

Proposal: To construct a pipeline to transport natural gas from the Mackenzie Delta area to Edson, Alberta for distribution to markets in southern Canada and the United States.

Proponent: Polar Gas Limited

Sponsors: TransCanada PipeLines (project manager); Panarctic Oils Ltd.; Tenneco Inc.

Applications: Filed with NEB and INAC on June 29, 1984. Additional supporting information was filed in 1985. The material filed may be updated soon to reflect changes in costs of construction, current economic conditions and system changes as a result of the Delta producers' gas export applications.

Source: Mackenzie Delta gas Niglintgak, Parsons Lake and Taglu gas fields

Markets: United States and/or Canada — to be determined

Facilities:
Compressor Stations: Maximum: 23
Length/Diameter: 2,330 km of 914 mm pipe extending from Taglu in the Northwest Territories to Edson, Alberta

System Capacity:
Initial: 23.0 million m^3/day
Ultimate: 45.3 million m^3/day

Estimated Cost: $4.5 billion (1989 dollars)

Workforce Requirements:
Construction: 4 years of construction
12,800 person years for pipeline
Operation: 200 people

Projected Completion: mid 1990s

Public Review: National Energy Board. At the present time, the National Energy Board considers the Polar Gas application to be incomplete.

Communities Affected: Inuvik, Tuktoyaktuk, Aklavik, Fort McPherson, Arctic Red River, Fort Good Hope, Fort Norman, Norman Wells, Fort Franklin, Wrigley, Fort Simpson, Jean Marie River, Fort Providence, Hay River, Trout Lake, Yellowknife

9.3.4 Mackenzie Valley Pipeline Project

Proposal: To construct a pipeline to transport natural gas from the Mackenzie Delta area to Boundary Lake on the British Columbia border. The project requires the extension of the ANGTS Prebuild system from Caroline, Alberta to Boundary Lake, on the Alberta/British Columbia border (approved in June 1977 as part of the ANGTS).

Proponent: Foothills Pipe Lines (N.W.T.) Ltd.
Foothills Pipe Lines (North B.C.) Ltd.

Sponsor: Foothills Pipe Lines Ltd.

Application Filed: October 1989

Source: Mackenzie Delta/Beaufort Sea gas

Markets: United States and Canada

Facilities:
Compressor Stations: Maximum: 20
Length/Diameter: 1,645 km of 864 mm pipe extending from Taglu, Northwest Territories to the British Columbia/Alberta Border near Boundary Lake, and 43.5 km of 610 mm and 406.4 mm pipe to connect the Parsons Lake and Niglintgak gas processing plants.

System Capacity:
Initial: 34 million m^3/d
Ultimate: 47 million m^3/d

Estimated Cost: 4.4 billion (1988 dollars)

Workforce Requirements: 3 years of construction
Construction: n/a
Operation: n/a

Projected Completion: 1 November 1996

Public Review: National Energy Board
At the present time, the National Energy Board considers the Foothills application to be incomplete.

Communities Affected: Inuvik, Fort Good Hope, Norman Wells, Fort Norman, Wrigley, Fort Simpson, Fort St. John.

References

The applications for permission to construct oil and gas pipelines are on file with the National Energy Board, Trebla Building — 473 Albert Street, Ottawa, Ontario K1A 0E5.

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The Canadian Petroleum Assocation. *Land Use Requirements for Anticipated Hydrocarbon Development in the Mackenzie Delta-Beaufort Sea Land Use Planning Region*. Calgary, Alberta: R.A. Owens Environmental Services, 1989.

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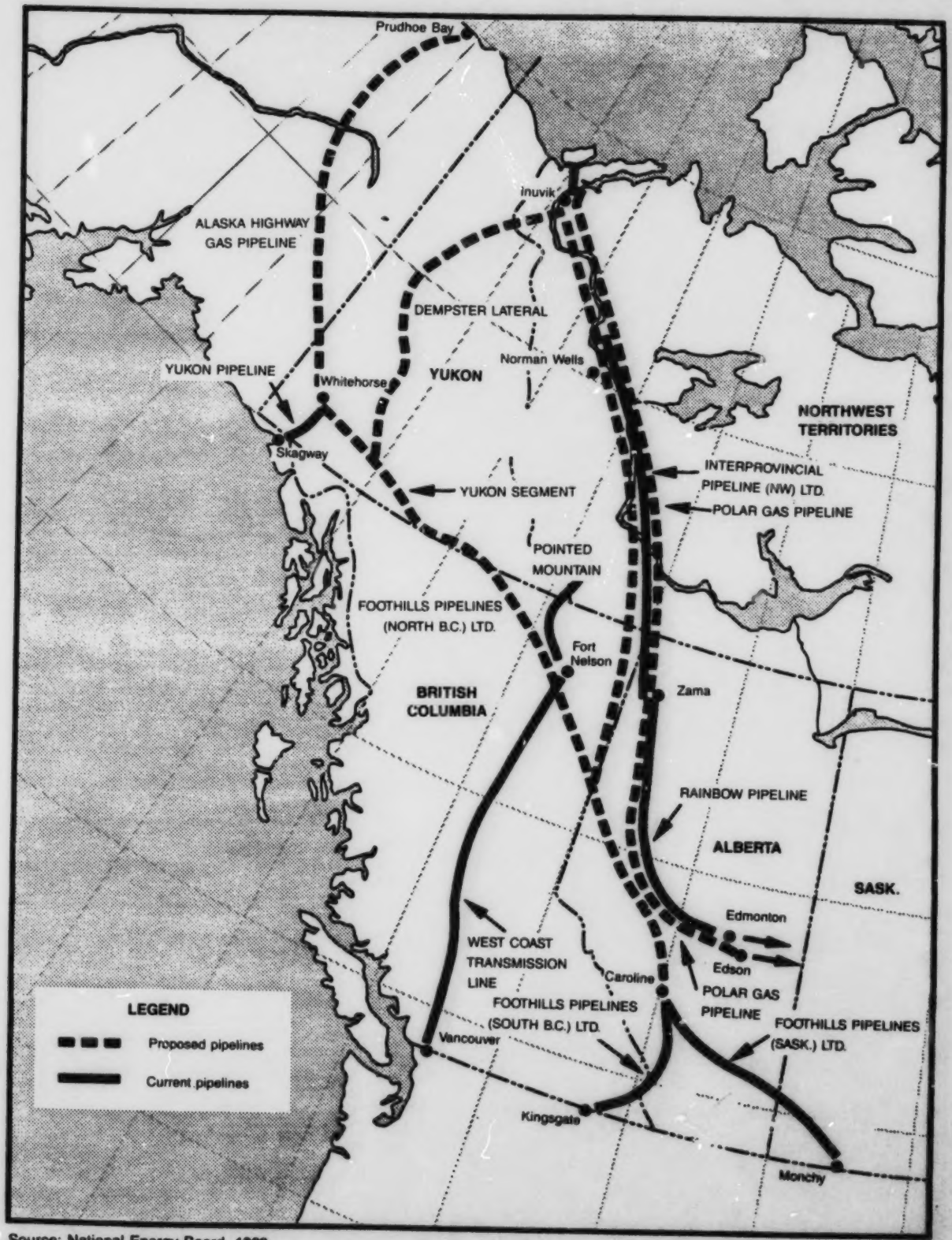
Figure 9.1
Oil & Gas Transportation



Source: National Energy Board, 1989

10.0 Transportation

10.1 General

Transportation is a key factor in the economic and social development of the Yukon and the N.W.T. Unlike the 19th century when travel to the North by dog team or water could take weeks or months, today most areas in the north can be reached within hours by air.

Early transportation developed primarily to support mining and national defence. The Klondike gold rush in the 1890s led to increasing numbers of paddle wheelers on the Yukon River and, the construction of the White Pass and Yukon Railway to link Skagway, Alaska and Whitehorse, Yukon. The Great Slave Railway was built in the 1960s to help develop the lead and zinc mine at Pine Point, N.W.T.

Not surprisingly, air transportation developed more rapidly than the road network. In 1929, the first mail flight reached Aklavik, and light aircraft equipped with skis and floats became the lifeline to northern native communities and mining camps. 'Punch' Dickins and 'Wop' May were well-known bush pilots of the 1930s who pioneered northern air transportation. Today most communities have airports and year-round scheduled air services.

The discovery of radium at Great Bear Lake in the 1930s led to the formation of the Northern Transportation Company Limited (NTCL), which has become the major marine carrier on the Mackenzie River and in the western Arctic.

It was not until the early 1940s that the first northern highway construction began. The Alaska Highway was spurred by North American defence needs during World War II. It also provided a way to extract valuable minerals from northern British Columbia and the Yukon.

In the late 1940s the then Mackenzie Highway was completed, providing the first road connection to the N.W.T. Extending 752 km north from Grande Prairie, Alberta, it carried freight to Hay River on Great Slave Lake, the southern end of the Mackenzie River transportation system.

In 1956 a roads policy finally emerged. Cabinet approved an annual budget of $10 million for new road construction in the Yukon and the N.W.T. This policy was revised in 1965 with the Territorial Roads Policy for the Future.

The roads policy was revised again in 1971 and in 1983. The annual roads budget now stands at $17.3 million. The current policy aims to maintain the established road network and complement air and marine transportation networks.

The Dempster Highway made a major improvement to the road network. The Dempster runs 726 km north from the Klondike Highway near Dawson City, Yukon to Inuvik, N.W.T. This highway's completion in 1978 opened up an all-weather road link between southern Canada and the Mackenzie Delta. However, for several weeks during spring break-up and fall freeze-up the highway cannot be used over the Peel River near Fort McPherson and over the Mackenzie River near Arctic Red River.

Bill C-13, a new *National Transportation Act* designed to reduce regulation in the transportation industry, became law in January 1988. Northern air and marine services are most affected by this legislation. Carriers must file their domestic service patterns and must abide by their schedules. Communities and licensed air carriers can intervene in another carrier's application if they can show that a proposed level of service would hurt a community. In marine transportation, community resupply services continue to be licensed by the National Transportation Agency on the Mackenzie River and in the western Arctic and are now licensed for an indefinite period instead of having to apply for annual licenses. Charter or unscheduled service that supports northern resource exploration and development are not regulated.

10.2 Air Transportation

10.2.1 General

Because of the vast distances which must be covered, transportation by air is the choice for most travellers in Canada's North even if alternatives are available. The shortness of the ice-free season even in those parts of the Arctic Ocean where open water is experienced, makes air transportation essential. To meet this need, commercial air carriers offer scheduled service to most communities and charter service virtually anywhere.

The level of northern air service greatly increased with the 1974 Northern Air Facilities Policy. The Policy allowed for airport upgrading in all communities with populations of at least 100. This led to year-round air service to most communities and enabled air carriers to use larger aircraft.

Figure 10-1 shows the location of airports throughout Canada's North and the level of service available at each airport. Many carriers operate to a regular schedule, although some are not required to do so under the terms of their licences.

10.2.2 Equipment

The equipment used by the carriers listed in Table 10-1 varies in accordance with the availability of aircraft and seasonal demand. Types listed here should be considered as a general guide.

10.2.3 Fares and Charter Rates

Air carriers charge on a toll per unit of traffic (i.e. price per seat) for passenger service.

In contrast to unit toll, in which charges are per seat or per kilogram, charter rates are for the entire aircraft. They are determined by the competitive market and usually reflect local costs. A licensee may file different rates for the same aircraft type for different locations or elect to offer a uniform rate wherever service is provided. The rates quoted in Table 10-2, 10-3 and 10-4 should be a guide only since rates can change.

10.3 Roads and Road Transportation

10.3.1 General

Northern roads (Figure 10-2) are often long and have little traffic. Most roads are gravel surfaces although parts of the Alaska Highway, Klondike Highway, Haines Road, Hay River Highway and the Fort Smith Highway are now paved or have a bituminous surface treatment. More than 1,850 km of Yukon highways have paved or bituminous-treated surfaces.

Because of the long distances between communities, weather forecasts and road conditions are regularly broadcast on radio. Drivers are warned of extreme weather and to carry survival equipment on long journeys.

Six ferry crossings are considered to be an integral part of the road system. They are: near Fort McPherson and at Arctic Red River on the Dempster Highway; on the Canol Road at Ross River; on the Yellowknife Highway at Fort Providence; on the Mackenzie Highway at the Liard River; and on the Top-of-the-World Highway at Dawson City.

Ferries usually operate from mid-May to early November in the south while at the more northerly crossings the season is from June to mid-October. Ice bridges can be started about the middle of December and kept in operation for two to three months.

In addition to the major road network, winter roads provide surface transportation to some communities. Figure 10-2 shows some established winter roads.

10.3.2 Highways in Yukon

The principal road entrance to Yukon is the Alaska Highway. Built during World War II, it is now an all-weather road which enters Yukon near Watson Lake and passes through Teslin to Whitehorse. From Whitehorse it runs roughly west to Haines Junction and then northwest, skirting Kluane National Park, to the Alaska border at Beaver Creek. Most of the highway is either paved or has bituminous surface treatment applied, but some stretches are gravel surfaced.

Another road from the south which connects to the Alaska Highway near Watson Lake is the continuation of BC Highway 37. This route runs north from its junction with the Yellowhead Highway between Smithers and Prince Rupert, B.C.

The Robert Campbell Highway runs northwest from Watson Lake to a location near Ross River where it meets the Canol Road and then to its junction with the Klondike Highway at Carmacks. It also connects with the Nahanni Range Road, Highway 10, which runs northeast to Tungsten.

Three other roads cross the southern border of Yukon. Highway 7 runs south from Jakes Corner, just east of Carcross, to Atlin, B.C. The Haines Road runs from Haines Junction south to Haines, Alaska. The Klondike Highway connects Skagway with Carcross, joins the Alaska Highway just south of Whitehorse, and separates from it again north of Whitehorse. It then continues north to Dawson City and joins Highway 11 at Stewart Crossing, which provides access to Mayo, Elsa and Keno.

The Dempster Highway branches off the Klondike Highway approximately 32 km southeast of Dawson City. The Dempster runs northeast, crosses into the N.W.T. to Fort McPherson and Arctic Red River and then joins the Mackenzie Highway south of Inuvik. The Dempster is Canada's first road to cross the Arctic Circle.

The Canol Road starts southeast of Whitehorse on the Alaska Highway at Johnson's Crossing and runs via Ross River to the MacMillan Pass at the Yukon and N.W.T. border.

Boundary Road, or the Top-of-the-World Highway, runs west from Dawson City and meets the Alaska Highway at Tetlin Junction, Alaska. The road is open only in the summer.

10.3.3 Highways in the N.W.T.

The Mackenzie Highway originates at Peace River, Alberta and is the principal highway route into the Northwest Territories. After crossing the border, it runs to Enterprise (just south of Hay River), and then runs northwest following the Mackenzie River through Fort Simpson. The Highway then runs north to Wrigley. A new bridge at the Willowlake River and a ferry at Camsell are required to provide year round access from Fort Simpson to Wrigley. These will be completed by the Government of the Northwest Territories.

Approximately 80 km northwest of Enterprise, the Mackenzie Highway intersects with Highway 3 (the Yellowknife Highway). A ferry at Fort Providence provides access to Rae and Yellowknife. East of Yellowknife is Highway 4 which is designated as the Ingraham Trail.

The Liard Highway provides an all-weather connection between Fort Nelson, B.C., and the Mackenzie Highway. The two highways connect approximately 45 km southeast of Fort Simpson.

The Dempster Highway originates in Yukon east of Dawson City, joins Fort McPherson and Arctic Red River to the Mackenzie Highway just south of Inuvik, N.W.T.

Highway 5 runs east and south from Hay River to Fort Smith on the Alberta-N.W.T. border. Highway 6 leaves Highway 5 east of Hay River and provides access to Pine Point and Fort Resolution.

In addition to the all-weather roads, winter roads provide transportation routes for many areas. These roads often provide vital transportation links necessary to provide communities with supplies needed to sustain themselves over the winter months. Without these seasonal roads, the basic supplies needed would have to be transported by aircraft. The expense is substantial. Examples of winter road links are Inuvik to Tuktoyaktuk, Wrigley to Fort Good Hope and from Fort Norman to Fort Franklin.

10.3.4 Highway Freight Carriers

Trucking firms carry freight into Yukon and the N.W.T. principally via the Alaska and Mackenzie highways.

In the Yukon four major companies are responsible for most traffic: Arrow Transportation Systems, Canadian Freightways Ltd., Kingsway Ltd. and Yukon Freight Lines Ltd. Others include: Crone & Bros., Malco Systems, Trimac and Sokil.

Rates are dependent on the size of the shipment and the class of goods. Rates typical for general cargo are shown in Table 10-5.

There are four principal highway carriers operating into the N.W.T., combined with a large number of smaller firms. The four main ones are: Grimshaw Trucking and Distributing Ltd., Edmonton; Byers Transport Ltd., Edmonton; Northwest Transport Ltd., Yellowknife; and Points North, Inuvik. Crone & Bros., Robfam and Sokil are other carriers active in the N.W.T. These companies carry general freight over the all-weather roads and provide transportation services during winter months on ice roads as well.

10.3.5 Buses

Buses serve both the Yukon and the N.W.T. Greyhound Coach travels the Alaska Highway between June and August, six times per week, from Edmonton to Whitehorse through Swift River, Teslin and Johnson's Crossing. From September to May, the service runs three times per week. Norline Coach provides service between Dawson City and Whitehorse three times per week between June and August, and twice a week between September and May. Greyhound also serves Haines Junction, Destruction Bay and Beaver Creek. Westour Bus Lines provides a daily service from Whitehorse to Fairbanks from May to September, and twice per week between Whitehorse and Anchorage from May to September.

Greyhound provides service to Hay River N.W.T., from Edmonton, through Peace River, Alberta, Monday through Saturday. Frame and Perkins Ltd offers connecting service to Yellowknife on Monday, Wednesday and Friday and returns the next day. The buses stop at Rae, Fort Providence and Enterprise. North of 60 Buslines, located in Fort Smith, serves Hay River on Monday, Wednesday and Friday.

Table 10-6 shows typical bus fares.

10.4 Water Transportation

10.4.1 General

Water transportation was the principal means of movement through the North from the earliest exploration until the 1920s and 1930s, when air travel became possible.

During the Klondike gold rush (1896) steamers travelled the Yukon River carrying miners and their supplies from Whitehorse to the gold fields near Dawson City. These steamers continued to operate on the river until fairly recent times. At present there is no commercial water transportation on this river.

In the N.W.T. the backbone of water transportation was and is the Mackenzie River. From Alexander Mackenzie's journey of 1789 until about 1826 the canoe was supreme. The canoe gave way to the larger shallow-draft York boats. These in turn were replaced by steamers in the late 1800s. Around 1930, tugs and barges, which now carry thousands of tonnes of freight each year, replaced the steamboats.

10.4.2 The Mackenzie Watershed Routes

Within the Mackenzie watershed there are five sectors: the Mackenzie River from Hay River to Tuktoyaktuk, including the Peel River; the western Arctic coast (Beaufort Sea area); the Athabasca River and Lake Athabasca system; Great Slave Lake; and the Liard River and Fort Nelson River system.

Navigation problems on the Mackenzie River include a short shipping season, ice conditions, low water levels (especially in the fall), four sets of rapids and decreasing daylight in the fall. Because of the rapids barge tows must stop and each barge must be carefully moved through a channel to protect the cargo. Tugs and barges are always prone to damage and this risk has increased as tugs and barges have become larger and heavier. Table 10-7 details the short shipping season in Great Slave Lake and the Mackenzie River by listing the average break-up and freeze-up dates at different locations.

Six shipping companies operate in the watershed. Four are licensed by the federal government to provide resupply services to communities along the Mackenzie River and in the Western Arctic. Cooper Barging Services operates in the Liard-Nelson River system and resupplies communities between Fort Simpson and Wrigley. Coastal Marine Limited resupplies communities between Inuvik and Tuktoyaktuk. Beluga Transportation Limited resupplies Inuvik, Tuktoyaktuk and Aklavik. Arctic Transport Ltd. supports oil and gas development in the Beaufort Sea. Len Cardinal Transport services exploration and development activities between Inuvik and Tuktoyaktuk.

The dominant carrier is the Northern Transportaiton Company Limited (NTCL), which moves between 80 per cent and 90 per cent of the tonnage in the Mackenzie watershed. NTCL has provided resupply services throughout the Mackenzie watershed since 1934, along the Western Arctic coast since 1957, along the North Slope of Alaska since 1963 and in the Keewatin (from Churchill) since 1975. (See Figure 10-3). Barges, with tanks below deck, are designed to handle large volumes of bulk petroleum products. Cargo carried on deck includes general merchandise, construction materials, steel containers, highway trailers, drummed fuel, drilling rigs and pressure silos of bulk drilling muds and cements. Resupply tonnages have remained fairly constant throughout the years. Keewatin tonnages have averaged about 30,000 short tons (27,216 metric tons) during the last three to four years. This is in addition to the community resupply tonnages on the Mackenzie River reported in Table 10-8. Cargoes related to oil and gas exploration have decreased since the mid-1980s.

With the closing of the Eldorado uranium mine at Uranium City, Saskatchewan in 1982, NTCL stopped operating in the Lake Athabasca sector. NTCL has a capacity of 450,000 short tons (408,233 metric tons).

NTCL was purchased from the federal government in 1985 by the Inuvialuit Development Corporation and Nunasi Corporation. These organizations are wholly owned by natives.

The Government of the N.W.T. prefers using NTCL to move its materials.

10.4.3 Central, Eastern and High Arctic Shipping

Much of the freight carried on the Mackenzie system is transferred to ocean vessels at Tuktoyaktuk for distribution to the Beaufort Sea area and to coastal points and islands as far east as Spence Bay. NTCL carries almost all of the freight into the area. (See Figure 10-3).

The eastern Arctic is served by the Eastern Arctic Sealift, coordinated by the Canadian Coast Guard. Cargo, originating from many Canadian and foreign points, is assembled principally at Montreal. Consignees include federal and territorial government departments, Crown agencies, the United States Air Force, private companies and individuals. Tonnage carried varies from year to year in volume and make-up but bulk fuel has predominated, at least in recent years. Eastern Arctic sealift tonnages are shown in Table 10-9.

The Coast Guard provides ice routing and escort services to the ships carrying this cargo. Areas served include Iqaluit, Strathcona Sound, Resolute Bay, Rae Point, Little Cornwallis Island, Eureka and sites in Foxe Basin and other points as far north as Grise Fiord.

NTCL service to the Keewatin consists of shipments moved by rail north to Churchill, Manitoba, marshalled in Churchill and shipped by tug and barge to communities along the west coast of Hudson Bay.

10.5 Rail Transportation

10.5.1 General

Only two railways are located in Canada's North at the present time. A line from Grimshaw, Alberta, which runs through Hay River to Pine Point, N.W.T. and a line from Skagway, Alaska to Whitehorse, Yukon.

10.5.2 The White Pass and Yukon Railway

A long-established narrow-gauge railroad connects Whitehorse to tidewater at Skagway, Alaska. The White Pass and Yukon Railway was built in 1898-1900 to serve the transportation needs of the prospectors and miners of the Klondike. Its route is from Skagway, Alaska, through the White Pass into British Columbia and thence north to Whitehorse, Yukon.

This once vital link has suffered economically in recent years. The railway closed in 1982 after the closure of its main customer, the Cyprus Anvil Mine, in Faro. The railway has started a summer tourist service from Skagway to the White Pass Summit and Fraser, B.C.

10.5.3 The Great Slave Lake Railway

The Great Slave Lake Railway was constructed by Canadian National Railways in 1965. The purpose was to develop the section of Canada from northern Alberta to the area of the N.W.T. south of Great Slave Lake and in particular to permit the exploitation of the lead/zinc deposits there. The route runs from Grimshaw, Alberta, north to Hay River, N.W.T., and thence east to the mine site at Pine Point.

Although this line was designed for the movement of lead-zinc ore concentrates from Pine Point Mines, there have been considerable grain and lumber shipments as well. The increase in petroleum exploration in the Arctic generated northbound traffic on the line to Hay River, the staging area for the Mackenzie River barge system. With the 1988 closure of the Pine Point Mine, the section from Hay River to Pine Point will close when the stockpiled concentrates are transported south.

10.6 Courier Services

The major couriers, Purolator, Buffalo Air Express, Northwest Territorial Airways and Canadian Airlines International offer service to many northern points including Whitehorse and Yellowknife. In some places consignees are expected to pick up their shipments at the airline offices.

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Table 10-1

Aircraft types used in scheduled service to various northern points

Carrier	Aircraft Type	No. of Seats
Calm Air	HS 748	45
First Air	HS 748	45
Northwest Territorial Airways	DC 3	23
Canadian Airlines	Lockheed Electra	65
Alkan Air	Boeing 737	115
Alkan Air	DC 3	23
Alkan Air	Twin Otter	17

Table 10-2

Typical one-way air fares, regular economy class, November 1988

Route	Fare
Edmonton-Whitehorse	$ 329.00
Whitehorse-Dawson	210.00
Whitehorse-Inuvik	340.00
Edmonton-Yellowknife	255.00
Montreal-Iqaluit	505.00
Iqaluit-Resolute	436.00
Iqaluit-Hall Beach	271.00
Winnipeg-Yellowknife	410.00
Yellowknife-Holman	320.00
Yellowknife-Cambridge Bay	245.00
Yellowknife-Iqaluit	696.00

Table 10-3

Typical general air cargo rates, November 1988

Route	Carrier	Rate $/kg	Minimum Charge
Montreal-Iqaluit	Canadian	2.52	$23.00
Iqaluit-Resolute	Canadian	2.55	$23.00
Iqaluit-Hall Beach	Canadian	1.89	$23.00
Edmonton-Whitehorse	Canadian	1.44	$23.00
Edmonton-Yellowknife	Canadian	1.25	$23.00
Whitehorse-Dawson City	Alkan	3.25	$23.00
Whitehorse-Inuvik	Alkan	3.15	$23.00
Winnipeg-Yellowknife	N.W.T.	1.44	$23.00
Yellowknife-Holman	N.W.T.	2.68	$23.00
Yellowknife-Cambridge Bay	N.W.T.	1.90	$23.00

Table 10-4

Typical charter rates for aircraft in the N.W.T. November 1988

Aircraft Type	Rate $/km	Rate $/hour
Fixed wing:		
Cessna 185	1.19	247.80
Twin Otter (DHC-6) 300 series	4.13	895.00
Hawker Siddeley 748	4.07-4.34*	1720-1900*
Boeing 727	4.97	3600.00
Helicopter:		
Bell 204B	—	1125.00
Bell 206B	—	535.00
Bell 206L-1	—	675.00
Hughes 500D	—	550.00

* Rates for destinations south and north of 70°, respectively.

Table 10-5

Typical rates for general cargo by highway transport, January 1989

Between Edmonton Alberta, and		Minimum Weights					
	kg	454	2,272	4,545	9,090	13,636	18,182
	lbs.	1,000	5,000	10,000	20,000	30,000	40,000
		Cents/kilogram					
Yellowknife, N.W.T.		53.5	45.9	31.1	24.2	20.4	18.4
Hay River, N.W.T.		38.4	32.9	22.5	17.1	14.4	13.0
Fort Simpson, N.W.T.		49.0	42.0	28.6	21.8	18.3	16.8
Fort Providence, N.W.T.		41.8	35.8	24.6	19.2	16.1	14.6
Arctic Red River, N.W.T.		82.9	68.1	59.9	58.5	49.3	39.1
Inuvik, N.W.T.		82.9	68.1	59.9	58.5	49.3	39.1
Whitehorse, Yukon		51.2	40.7	35.0	29.8	28.2	23.3
Eagle Plains, Yukon		79.5	65.5	57.7	56.3	49.3	37.4

Source: Western Tariff Bureau, Calgary
Note: Shippers often negotiate rates with carriers, and these may vary from those filed with tariff bureaus.

Table 10-6

Typical one-way bus fares, February 1989

From	To	Fare
Edmonton, Alberta	Watson Lake, Yukon	$117.20
	Swift River, Yukon	142.45
	Teslin, Yukon	137.45
	Johnsons Crossing, Yukon	141.45
	Whitehorse, Yukon	151.35
Whitehorse, Yukon	Haines Junction, Yukon	20.00
	Beaver Creek, Yukon	52.00
	Dawson City, Yukon	60.00
Edmonton, Alberta	Enterprise, N.W.T.	79.75
	Hay River, N.W.T.	83.00
	Fort Providence, N.W.T.	96.75
	Yellowknife, N.W.T.	117.71
Hay River, N.W.T.	Yellowknife, N.W.T.	40.00
Whitehorse, Yukon	Fairbanks, Alaska	129.00
	Anchorage, Alaska	140.00

Fares quoted by Greyhound Bus Lines Ltd., Frame & Perkins Ltd., North of 60 Buslines, Norline Coach, and Westour Bus Lines.

Table 10-7

Average break-up and freeze-up dates, Great Slave Lake and Mackenzie River

Location	Break-up*	Freeze-up**	Days***
Hay River	May 7	Oct. 30	176
Yellowknife	June 1	Oct. 29	150
Fort Resolution	June 8	Nov. 14	159
Reliance	June 28	Nov. 18	143
Fort Providence	May 18	Dec. 6	202
Fort Simpson	May 16	Nov. 15	183
Wrigley	May 22	Nov. 21	183
Fort Norman	May 28	Nov. 14	170
Norman Wells	May 26	Nov. 12	170
Fort Good Hope	May 30	Nov. 9	163
Aklavik	May 31	Oct. 12	134
Inuvik	June 3	Oct. 18	137

* Break-up is the date the water is completely free of ice.
** Freeze-up is the date the water is completely frozen.
*** Number of days between break-up and freeze-up. However, there will be fewer navigable days.

Source: Environment Canada, Atmospheric Environment Service, Canadian Climate Centre, Downsview, Ontario

The average sailing time between Hay River and Tuktoyaktuk (1,806 km) is:

	Round Trip	Delays due to darkness
Spring	14 days, 6 hours	—
Fall	17 days	4 days, 9 hours

Note: Dates are based on break-up dates for an average 22 years and freeze-up dates for an average 24 years. However, most locations are missing records for some years. Reliance is missing records for eight years.

Table 10-8

Tonnage carried by Northern Transportation Company Ltd., 1979-1988

Year	Short Tons*
1979	314,000
1980	306,000
1981	348,000
1982	303,000
1983	297,000
1984	216,381**
1985	237,122**
1986	192,963**
1987	153,315**
1988	148,000** (p)

* One short ton equals 907 kg (2,000 lbs.)
** Includes only community resupply or regulated tonnages along the Mackenzie River. Not included are industrial tonnage, i.e., materials for use in oil and gas exploration and development, and Keewatin tonnages.
(p) preliminary
Sources: Northern Transportation Company Ltd., *Annual Reports*
National Transportation Agency of Canada

Table 10-9

Tonnage carried by Eastern Arctic Sealift, 1979-1988

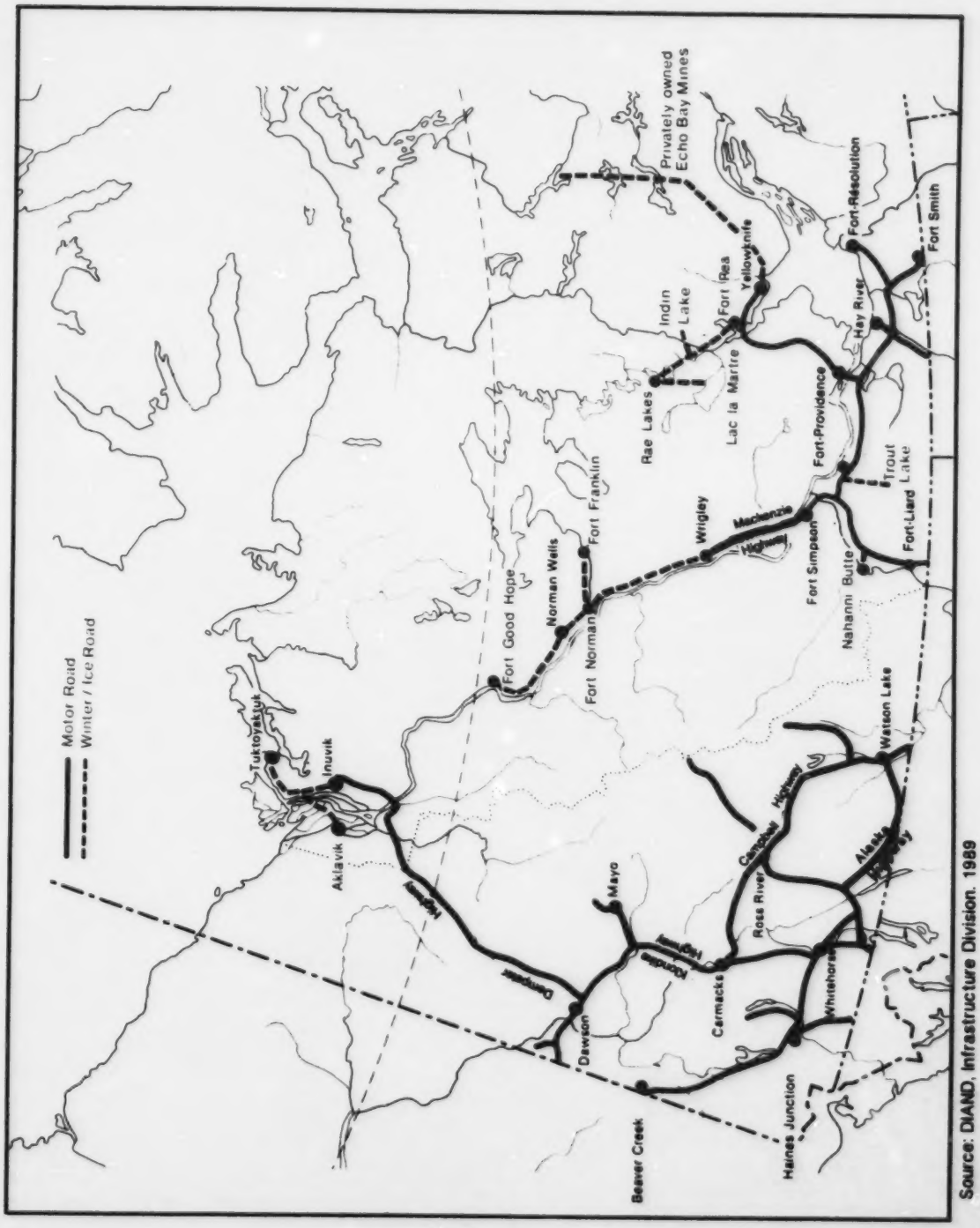
Year	Dry cargo (tonnes)*	Bulk Fuel (tonnes)*
1979	9,682	34,500
1980	10,033	33,400
1981	11,862	27,094
1982	10,393	28,881
1983	10,018	27,363
1984	12,594	36,126
1985	16,192	31,066
1986	14,956	32,511**
1987	14,704	32,452**
1988	14,128	36,747**
1989	15,612***	33,915**

* One tonne equals 1,000 kg (2,205 lbs.)
** Excludes Coast Guard bunker fuel tanker tonnage
*** Preliminary
Source: Transport Canada, Canadian Coast Guard

Source: DIAND, Infrastructure Division, 1989

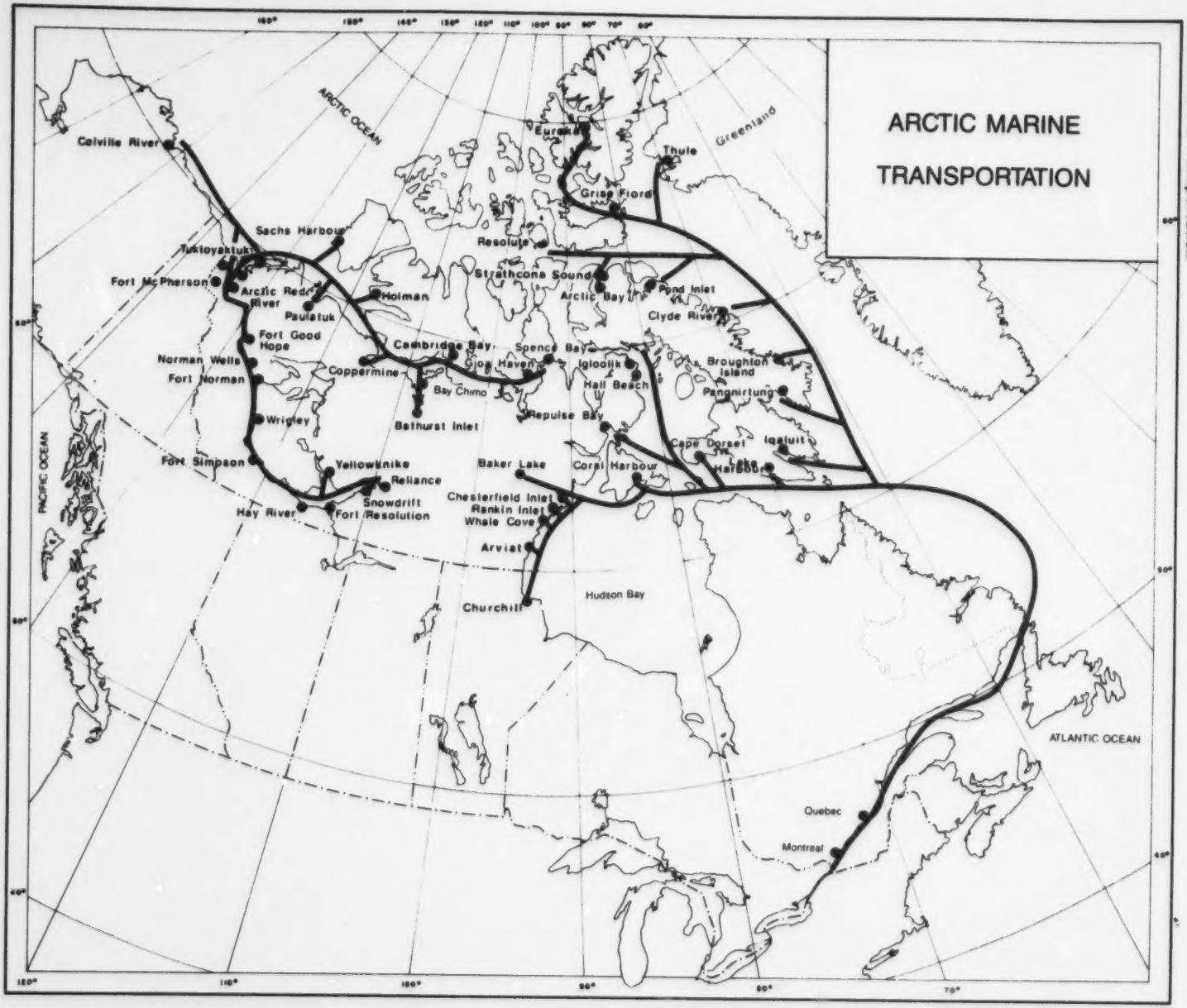
Figure 10-1
Airports

Figure 10-2
Road Network: Yukon and Northwest Territories



Source: DIAND, Infrastructure Division, 1989

Figure 10-3



Source: National Transportation Company Ltd.
Canadian Coast Guard Eastern Arctic Sealift

Note: Eureka is a scientific research station administered by Environment Canada

11.0 Communications

11.1 Telephone Service

Telephone service is provided in the North by two carriers. Bell Canada serves most of the area east of 102 W longitude. West of this line and in most of the Arctic Islands, NorthwesTel is responsible. (NorthwesTel is owned by BCE Inc., the management holding company which also owns Bell Canada). The administrative offices of NorthwesTel are in Whitehorse, Yukon. Bell Canada maintains an office in Iqaluit. Telephone company rates in the North are regulated by the Canadian Radio-television and Telecommunications Commission (CRTC).

11.1.1 Bell Canada

In the eastern sector, there are 22 communities including Little Cornwallis Island. Bell provides communications completely via satellite to all of these because they are in remote locations. They have full direct dialing. The Bell Canada directory, which covers the Northwest Territories, is trilingual — English, French and Inuktitut. Mobile service is available in some areas, served by bases at Iqaluit, N.W.T. and Alma, Quebec. A range of telecommunications services is available, including data transmission and telex.

11.1.2 NorthwesTel

In the western Northwest Territories and all of Yukon, NorthwesTel provides service to 49 communities. Some terrestrial microwave is used for trunk routes in addition to satellite facilities. Eight small communities are served by radio telephone.

Serving NorthwesTel's 2.35 million km^2 operating area are 8,690 km of microwave systems. An 1800 channel system extends from Grande Prairie, Alberta to the Alaska-Yukon border near Beaver Creek. Other major systems serve Yellowknife and extend down the Mackenzie Valley, serving communities along the way. These two systems are connected with a 960 channel system from Fort Simpson to Fort Nelson, British Columbia. There are a total of 32,000 network access lines, all of which have direct distance dialing capability.

There are over 100 manual mobile telephone base stations, located to provide optimum coverage of the major highways and the Mackenzie River transportation corridor. NorthwesTel also provides automated mobile radio coverage in the 400 MHz band in the Yellowknife, Lower Mackenzie, Dawson City and Inuvik areas. As well as voice transmission facilities, the network also provides telex, telegram, data transmission, manual and automated mobile service, facsimile and computer communications. In addition, program quality channels, i.e., bundles of channels which improve the quality or dynamic range of voice transmissions, are provided for the Canadian Broadcasting Corporation (CBC).

The communities of the Northwest Territories and Yukon and the telephone service available to each are listed in Table 11-1.

11.2 Radio

Radio in Yukon and the N.W.T. means both broadcast transmissions for information and entertainment and radio-telephone, a voice communication medium. All are subject to CRTC regulations and licensing procedures. Because of the totally different nature of the transmissions, these are treated separately here.

11.2.1 Radio-telephone

Although many telephone conversations are carried over part of the route by radio link, the term radio-telephone is usually reserved for simplex systems. These are characterized by the use of a single channel shared in turn by the persons communicating, so that A listens while B speaks and vice versa. Both Bell Canada and NorthwesTel provide mobile radio-telephone service from many centres throughout the North. This provides an effective extension of the switched telephone network.

In addition to mobile telephone service, stand-alone radio-telephone is widely used. Equipment ranges from hand-held, battery-operated transceivers operated under the provisions of the General Radio Service (often erroneously called Citizen's Band, the American equivalent) to sophisticated equipment to keep parts of a widely dispersed oil exploration company in touch with one another and with field offices.

Both FM (frequency modulated) and AM (amplitude modulated) signals are employed. Except for the very lowest power transceivers used in General Radio Service, all equipment must be licenced by the Department of Communications.

11.2.2 Radio and Television Broadcast Facilities

Radio and television broadcast facilities in the N.W.T. and the Yukon are provided by two classes of station. Typical radio broadcast stations do much of their own programming, but also use network programs to provide more national information. The other class includes radio and television rebroadcast or repeater transmission stations. Both types of stations are licensed by the Canadian Radio-television and Telecommunications Commission (CRTC).

Table 11-2 lists the licenced radio broadcast stations by community, including operating frequencies and owners (licensees). These stations have production facilities to originate their own programming. Some of this programming may be rebroadcast to other communities through repeater transmitters. The N.W.T. has 16 radio broadcasting stations; the Yukon has 10.

Also, Yellowknife, Iqaluit and Whitehorse have television production centres. Most television programming, produced in the North is first sent to Toronto and then transmitted to TELESAT's ANIK D satellite through the CBC Network Control Centre. A facility in Iqaluit transmits/uplinks a television signal to a satellite. Repeater stations throughout the North access signals from the satellite. Figure 11-1 shows the areas covered by the two satellite-controlled channels serving the North.

Table 11-3 lists the locations of the radio and television rebroadcast/repeater stations in the North. These transmitters may also rebroadcast through a land line or microwave link. There are 55 radio rebroadcasting stations in the N.W.T.; 28 in the Yukon. Also, the N.W.T. has 78 television repeater stations; and the Yukon has 28.

Cable service is relatively new in the North. In the late 1970s, tapes produced in Vancouver were sent to Yellowknife and Whitehorse where they were transmitted through cable systems. When satellite technology emerged in 1981, it became possible for a cable system to access satellite signals. As a result, closed-circuit cable systems have increased in the last five to eight years. In 1989, nine communities have cable systems (see table 11-2).

11.3 Radio and Television Programming

Providing an acceptable range of radio and television services for Canada's North is difficult. Community populations are small, often numbering in the hundreds. Whitehorse is the largest community with fewer than 20,000 people. Nevertheless, 73 other smaller communities over 3.9 million km^2 have access to radio and/or television services. It is not enough to broadcast international and national news to these remote places. Northerners also need accurate and current information to help them make decisions on issues such as major resource development, resolution of aboriginal rights and native land claims, and the constitutional development of the territories.

Most northern regions had no television in 1968. When CRTC was formed in 1968, the North was identified as a "special" concern. The CRTC recognized satellites could play a major role bringing television to the North and native broadcasting would reinforce the unique cultural and linguistic distinctions of Canada's native people. In 1979, CRTC established the Committee on Extension of Services to Northern and Remote Communities, which produced the "Therrien Report" in July 1980. The report provided a public forum to examine and debate the broadcasting needs of many interest groups. The Northern Native Broadcast Access Program (NNBAP), approved by the federal Cabinet in March 1983, and administered by the Department of The Secretary of State, funds 13 native communication societies across Canada. In 1986, the CRTC Action Committee on Northern Native Broadcasting was formed to respond to conflicts on the issue of access to various kinds of transmission facilities used by native communications societies. In December 1984, the Commission announced the formation of a Northern Native Broadcasting Committee, which was to identify broadcasting-related problems of the native communications societies. This committee comprises representatives from native communications societies, the CBC, the Department of Communications and the Department of The Secretary of State.

Canadian Satellite Communications Inc. (CANCOM), private radio stations, community radio stations and cable companies distribute native communications societies' programming.

Since 1983 there have been efforts to enhance and protect aboriginal languages and cultures through native broadcasting. Under the Northern Native Broadcast Access Program (NNBAP), four native communications societies have been funded. Support is provided for capital equipment, ongoing operational expenditures and staff salaries. In 1988-89, $4,950,000 was given for operations and $63,515 for capital equipment. The total native listening audience is about 40,000. Amounts provided for operations and capital have varied according to need over the years.

As of February 1989, there were about 30 aboriginal community stations in the N.W.T. and 14 in the Yukon. Aboriginal stations provide news and information in languages indigenous to these communities.

11.3.1 Radio Programming

The North has three radio programming services: CBC Northern Service, Northern Native Broadcasting, Yukon (NNB,Y) and the Native Communications Society of the Western N.W.T. Figure 11-1 shows the areas covered by the native communications societies.

11.3.1.1 CBC Northern Service

CBC Northern Service was established in 1958 as a branch of CBC. It is responsible for providing radio and television services to the North. The Service is funded through the parliamentary appropriations given to the CBC.

CBC Northern Service broadcasts in eight languages and in four time zones. It also provides transmitters to communities of more than 500 people. Communities with fewer than 500 people receive transmitters from the territorial governments.

Each week CBC produces about 220 hours of local programming that represents the voices, ideas and concerns of about 500 northern citizens. About 25,000 stories are presented each year, in the regular daily programs.

Radio programming from Whitehorse is directed to a mostly English-speaking audience; little native language programming is produced. CBC Inuvik produces English, Inuvialuktun and Gwich'in (Loucheux), and Yellowknife provides English, Chipewyan, Slavey and Dogrib. Residents in the central and eastern Arctic receive English and Inuktitut from CBC operations in Rankin Inlet and Iqaluit. Because fewer non-natives live in these regions, Inuktitut is the main language of production. Specials are also produced on topics ranging from concerts of northern musicians and dancers to the Arctic Winter Games and territorial election results.

Many settlements have a radio society. A society can arrange with CBC to use the local repeater to broadcast locally produced programming to its own area. Local groups can broadcast their own music, news in the local dialect or other items of community interest. The facility has also been used to co-ordinate searches for lost hunting parties.

11.3.1.2 Northern Native Broadcasting, Yukon (NNB,Y)

In the Yukon, native language programming is different. A native communication society, Northern Native Broadcasting, Yukon (NNB,Y), has established a network of stations at Haines Junction, Old Crow, Pelly Crossing, Ross River, Whitehorse, Burwash Landing, Carcross, Carmacks, Mayo, Teslin, Upper Liard and Watson Lake. Regularly scheduled programming includes native languages and translation, community information, music and other features that enhance native heritage and culture. The Northern Native Broadcast Access Program (NNBAP) funds NNB,Y. Radio programming is about 60 hours per week for an audience of approximately 3,000.

11.3.1.3 Native Communications Society of the Western Northwest Territories

The Native Communications Society (NCS) of the Western Northwest Territories was incorporated in 1975. It has a listening audience of about 13,000 Dene/Metis in 30 communities from Hudson Bay to the N.W.T.-Yukon border. Station CKNM has the second-largest audience in Yellowknife and reaches 23 communities by satellite. The production format includes open-line shows, news, weather, sports, music and children's programs.

Production is increasing in the five Dene languages: Chipewyan, Dogrib, Gwich'in (Loucheux), and North and South Slavey. Radio programming is about 84 hours per week. NNBAP and the Government of the Northwest Territories (GNWT) financially support NCS.

11.3.2 Television Programming

Television programming for the North is carried out by the CBC Northern Service, the Inuit Broadcasting Corporation (IBC), the Inuvialuit Communications Society (ICS) and NNB,Y communications society. Figure 11-1 shows the approximate areas covered by the native communications societies.

11.3.2.1 CBC Northern Service

Television programming for the North began in 1967. The CBC shipped program tapes from the south for rebroadcast in 14 northern communities across Canada for four hours each day. This system was replaced by satellite delivery of CBC network programming which became possible in 1973 using the first Anik satellites.

In 1979 CBC established its first television production facilities in Yellowknife followed by bureaus created in Whitehorse in 1986 and Iqaluit in 1988. CBC Northern Service produces weekly programs which are shipped to Toronto by satellite (uplinked) where they are recorded and then transmitted to northern communities using Telesat Canada's Anik D1 satellite.

The CBC uses two satellite channels to serve the Yukon and N.W.T. Channel B is reserved for transmission to the eastern N.W.T. Simultaneously, Channel B is the means by which CBC distributes its network programming to southern stations in the Atlantic region. Channel C is for the western N.W.T. and Yukon and also doubles as the network programming "feed" to British Columbia CBC stations.

CBC Northern Service also distributes television programming for three N.W.T./Yukon Native broadcasting societies using these same channels. This is done for the Inuit Broadcasting Corporation, the Inuvialuit Communications Society, and Northern Native Broadcasting, Yukon. IBC also uses a Telesat "occasional use" satellite channel on Anik D1, Channel F, as a means of supplementing the access it has to CBC's Channel B.

CBC Northern Service presents programs on issues and events relevant to the special broadcasting needs of N.W.T. and Yukon residents. These programs include:

"Focus North" is a 26-episode current affairs series presenting in-depth analysis of major northern issues and events. This half-hour program originates in Yellowknife.

"Denendeh K'e" features the native people of the Mackenzie Valley: Slavey, Dogrib, Chipewyan and Gwich'in (Loucheux). Cultural and current affairs topics relevant to the lifestyles of western natives are portrayed in 18 half-hour shows. Each show features three languages.

"Aqsarniit", the weekly half-hour Inuktitut current affairs series, is produced in the small CBC Northern Service television facilities in Iqaluit. It features the views and daily experiences of Canada's Inuit residents. Aqsaniit was started in 1968 and replaced Inuktitut programming which had been produced in Montreal and Ottawa since 1973.

An operations unit in Ottawa handles on-air scheduling and public service announcements, and produces station breaks. CBC Northern Service now produces about 45 hours of television programming in the Yukon and N.W.T. each year, but hopes to increase that level of regional production in future years.

11.3.2.2 Inuit Broadcasting Corporation (IBC)

The Inuit Broadcasting Corporation (IBC) was formed in April 1981 and began broadcasting through the CBC Northern Service facilities in January 1982. The Inuit Tapirisat of Canada originated the Inukshuk Project, one of several federally sponsored experiments in the late 1970s, designed to test the interactive capacity of Canada's new satellite technology.

The Inukshuk Project, which ended in 1981 after eight months of broadcasting and teleconferencing, allowed Inuit in six communities in the N.W.T. to see each other, discuss important issues and exchange information in their own language through a satellite network. The Inukshuk Project demonstrated that Inuit could successfully manage complex broadcasting projects and adapt sophisticated communications technology to meet their needs. Most of IBC's revenues are from government sources through NNBAP.

IBC has production facilities in Baker Lake, Cambridge Bay, Iqaluit, Igloolik and Rankin Inlet. Programming is varied, since each production centre has developed a specialty: Cambridge Bay is best known for its regional news coverage; Baker Lake and Rankin Inlet are associated with cultural and entertainment programming; Igloolik produces historical features and Iqaluit specializes in current affairs, drama and children's educational series. Cultural programs are a regular part of the production schedule in each region. Subjects include preparing traditional food and clothing, throat singing, hunting, contemporary northern music festivals and fashion shows. Television programming is about five hours per week. IBC also broadcasts programs produced by other Inuit communications organizations in Quebec and Labrador.

Some of IBC's programs are:

"Qaggig" is a current affairs show on important regional issues such as land claims, Arctic sovereignty, northern defence, and developing responsible government north of 60°.

"Tukiginai", a children's series, features a legendary hero named Kiviuq, who is part hunter and part shaman (medicine man). The series also features an irresistible puppet family Johnny the Lemming, Tulu the Saucy Raven, and a little boy and girl and their grandparents who embark on interesting and fun-filled adventures. The series, broadcast three times per week, reflects Inuit cultural values such as respect for elders, sharing and patience. Although "Takuginai" is for five-to seven-year-olds it appeals to young and old alike.

"Summer in the Life of Louisa" is a docudrama on important social and health issues. An episode on spousal assault, produced for the Department of Health and Welfare, won a national award for the best overall aboriginal television program in 1987. Other programs, for multilingual audiences have been undertaken for Parks Canada and Industry, Science and Technology Canada, among others.

IBC has coproduced programs with CBC, the National Film Board and Japan's national broadcasting service. IBC film crews have covered Canadian famine relief efforts in Ethiopia, First Ministers' conferences, territorial elections, meetings of the Inuit Circumpolar Conference and an expedition by dogteam from Igloolik to Greenland and other polar treks.

11.3.2.3 Inuvialuit Communications Society (ICS)

The Inuvialuit Communications Society (ICS) serves about 4,000 Inuvialuit located mostly in Inuvik, Tuktoyaktuk, Sachs Harbour, Holman, Paulatuk and Aklavik. ICS's goal is to help preserve their language, Inuvialuktun. Most programs are in Inuvialuktun and are about the Inuvialuit people, communities and traditions. Since it began in January 1985, several Inuvialuit have been training in television production techniques at its production facility in Inuvik. ICS programs are distributed by CBC Northern Services.

The programs include: "Rosie's Class", about the problems of retaining the language, designed for children between kindergarten and grade three; "Kid's Camp, a program about camp life; "Emma's Music," which helps children experience music (drumming and fiddling); and "Young Offenders," which tries to deter youngsters from trouble with the law by presenting the rigorous training regime in a reform bush camp.

ICS is funded by NNBAP and produces about one half-hour of television each week.

11.3.2.4 Northern Native Broadcasting, Yukon (NNB,Y)

NEDAA is the television programming unit for the NNB,Y communications society. It produces programs in North Tutchone, South Tutchone, Gwich'in (Loucheux), Tlingit, Kasha, Han and English. A weekly format brings news highlights, feature stories, personal profiles and messages from Yukon elders.

Programs have included "Earl's Pearls" about learning to speak a native language, for the 6 to 12 age group; "Yukon (Indian) Territory?" which was the origins of Indian peoples' aboriginal rights, the history of the Yukon Indian land claim negotiations and the implication of a settlement for the territory; and "The Literacy Dilemma" which discussed literacy in the Yukon native community and the importance of community literacy development.

NNB,Y is funded by NNBAP and currently produces about one hour of television per week.

11.4 Print Media

The Native Communications Program (NCP) was established in 1974 by the Department of the Secretary of State to help northern Aboriginal peoples develop and control modern communications media, including newspapers. NCP supports native communications societies in some operational expenditures, training and media workshops. In 1988-89, $731,257 were distributed to four communications societies.

11.4.1 Northwest Territories

The following newspapers and newsletters are published in the N.W.T.:

Newspaper/Newsletter	*Publisher*
The Hub (weekly) P.O. Box 1250 Hay River, X0E 0R0 Tel: (403) 874-6577	Hub Publications Ltd.
Inuvik Drum (weekly) P.O. Box 2660 Inuvik, X0E 0T0 Tel: (403) 979-4545	Northern News Service

L'Aquilon (every two months) (French-language newspaper) C.P. 1325 Yellowknife, X1A 2R3 Tel: (403) 873-6603	Rédactrice en chef: Denise Canuel
Mackenzie Times (twice a month) P.O. Box 479 Fort Simpson, X0E 0N0 Tel: (403) 695-3330	Joe Mercredi
News/North (weekly) P.O. Box 2820 Yellowknife, X0E 1H0 Tel: (403) 873-4031	Northern News Service
Nunatsiaq News (weekly) P.O. Box 8 Iqaluit, X0A 0H0 Tel: (819) 979-5357	Nunatext Publishing Corp.
Slave River Journal (weekly) P.O. Box 990 Fort Smith, X0E 0P0 Tel: (403) 872-2784	Cascade Publishing Inc.
The Press Independent (weekly) Box 1919 Yellowknife, X1A 2P4 Tel: (403) 873-2661	Native Communications Society of the Western N.W.T.
Tusaayaksat (monthly) 3rd Floor, Professional Building P.O. Box 1704 Inuvik, X0E 0T0 Tel: (403) 979-2067	Inuvialuit Communications Society
Yellowknifer (weekly) P.O. Box 2820 Yellowknife, X0E 2R1 Tel: (403) 873-4031	Northern News Service

11.4.2 Yukon

The following newspapers and magazines are published in the Yukon:

Whitehorse Star (Monday to Friday) 2149 Second Avenue Whitehorse, Y1A 1C5 Tel: (403) 667-4481	Bob Erlam
Yukon News (Wednesday and Friday) 211 Wood Street Whitehorse, Y1A 2E4 Tel: (403) 667-6285	Doug Bell
Dannzhà' (monthly) 22 Nisutlin Drive Whitehorse, Y1A 3S5 Tel: (403) 667-2775	Ye Sa To Communication Society
Klondike Sun (monthly) Bag 6040 Dawson City Y0B 1G0 Tel: (403) 993-6318	Klondike Sun Literary Society
Faro Raven (monthly) Box 699 Faro Y0B 1K0 Tel: (403) 994-3011	Not available

11.5 Communications Organizations and Societies — Contacts

CBC Northern Service, Regional Offices

CBC Eastern Arctic
P.O. Box 490
Iqaluit, N.W.T.
X0A 0H0
Tel: (819) 979-5353

CBC Kivalliq
P.O. Box 130
Rankin Inlet, N.W.T.
X0C 0G0
Tel: (819) 645-2885

CBC Western Arctic
Mackenzie Road, Bag Service 8
Inuvik, N.W.T.
X0E 0T0
Tel: (403) 979-7600

CBC Mackenzie
CBC North — TV
P.O. Box 160
Yellowknife, N.W.T.
X1A 2N2
Tel: (403) 920-5400

CBC Yukon
3103 — 3rd Avenue
Whitehorse, Yukon
Y1A 1E5
Tel: (403) 668-8400

Inuit Broadcasting Corporation, Production Centres

Inuit Broadcasting Corporation
Baker Lake, N.W.T.
X0C 0A0
Tel: (819) 793-2893

Inuit Broadcasting Corporation
Cambridge Bay, N.W.T.
X0E 0C0
Tel: (403) 983-2576

Inuit Broadcasting Corporation
Igloolik, N.W.T.
X0A 0L0
Tel: (819) 934-8953

Inuit Broadcasting Corporation
P.O. Box 1700
Iqaluit, N.W.T.
X0A 0H0
Tel: (819) 979-6231

Inuit Broadcasting Corporation
Rankin Inlet, N.W.T.
X0C 0G0
Tel: (819) 645-2678

Inuvialuit Communications Society, Production Centres

Inuvialuit Communications Society
Administration and Television
Semler Building
P.O. Box 1704
Inuvik, N.W.T.
X0E 0T0
Tel: (403) 979-2320

Inuvialuit Communications Society
Graphic Design
Tumitchiat
3rd Floor, Professional Building
P.O. Box 1704
Inuvik, N.W.T.
X0E 0T0
Tel: (403) 979-4285

Native Communications Society of the Western Northwest Territories

Native Communications Society of the Western Northwest Territories
P.O. Box 1919
Yellowknife, N.W.T.
X1A 2P4
Tel: (403) 873-2661

Northern Native Broadcasting, Yukon

Northern Native Broadcasting, Yukon
(CHON-FM and NEDAA)
4228A — 4th Avenue
Whitehorse, Yukon
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Tel: (403) 668-6629

NorthwesTel Inc.

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Bell Canada

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X0A 0H0
Tel: (819) 979-5384

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Canadian Radio-television and Telecommunications Commission. "Northern Native Broadcasting". *Public Notice CRTC 1985-274.* Ottawa: 1985.

Canadian Radio-television and Telecommunications Commission. *The 1980s: Decade of Diversity — Broadcasting, Satellites and Pay-TV. Report of the Committee on Extension of Service to Northern and Remote Communities. Cat. No. BC92-24/1980. Ottawa: Supply and Services Canada, 1980.*

Department of the Secretary of State of Canada. Guide to Native Citizens' Programs. Cat. No. S2-195/1989. Ottawa: Supply and Services Canada, 1989.

Murin, Deborah Lee (ed.). *Northern Native Broadcast Directory.* Ottawa: Runge Press Limited, 1988.

Murray, Catherine A. *Managing Diversity: Federal Provincial Collaboration and the Committee on Extension of Services to Northern and Remote Communities.* Kingston, Ontario: Institute of Intergovernmental Relations, Queen's University, 1983.

Tourigny, Patrick. *Community Television Handbook for Northern and Underserved Communities.* Broadcast Programs Analysis Branch, Canadian Radio-television and Telecommunications Commission. Cat. No. BC92-29/1983. Ottawa: Supply and Services Canada, 1983.

Table 11-1

Telephone service in the N.W.T. and Yukon, February 1989

Community	Service by Bell Canada	Service by NorthwesTel	
	Bell Canada	NorthwesTel	
	Satellite	HF Radio Telephone	Satellite/Microwave
Northwest Territories			
Aklavik			X
Arctic Bay	X		
Arctic Red River			X
Arviat	X		
Baker Lake	X		
Bathurst Inlet		X	
Broughton Island	X		
Cambridge Bay			X
Cape Dorset	X		
Chesterfield Inlet	X		
Clyde River	X		
Colville Lake		X	
Coppermine			X
Coral Harbour	X		
Detah		X	
Enterprise			X
Fort Franklin			X
Fort Good Hope			X
Fort Liard			X
Fort McPherson			X
Fort Norman			X
Fort Providence			X
Fort Resolution			X
Fort Simpson			X
Fort Smith			X
Gjoa Haven			X
Grise Fiord	X		
Hall Beach	X		
Hay River			X
Holman			X
Igloolik	X		
Inuvik			X
Iqaluit	X		
Jean Marie River		X	
Kakisa		X	
Lac la Martre			X
Lake Harbour	X		
Little Com-wallis Island	X		
Nahanni Butte		X	
Nanisivik	X		
Norman Wells			X
Pangnirtung	X		
Paulatuk			X
Pelly Bay			X
Pine Point			X
Pond Inlet	X		
Rae-Edzo			X
Rae Lakes			X
Rankin Inlet	X		
Repulse Bay	X		
Resolute	X		
Sachs Harbour			X
Sanikiluaq	X		
Snare Lake		X	
Snowdrift			X
Spence Bay			X
Trout Lake		X	
Tuktoyaktuk			X

Table 11-1 *(Continued)*

Telephone service in the N.W.T. and Yukon, February 1989 (con'd)

	Service by Bell Canada	Service by NorthwesTel	
	Bell Canada	NorthwesTel	
Community	Satellite	HF Radio Telephone	Satellite/Microwave
Tungsten			X
Whale Cove	X		
Wrigley			X
Yellowknife			X
Yukon			
Beaver Creek			X
Burwash Landing			X
Carcross			X
Carmacks			X
Dawson City			X
Destruction Bay			X
Elsa			X
Faro			X
Haines Junction			X
Old Crow			X
Pelly Crossing			X
Ross River			X
Swift River			X
Tagish			X
Teslin			X
Upper Liard			X
Watson Lake			X
Whitehorse			X

Source: Communications Canada, Telecommunications Policy Branch

Table 11-2

Radio Broadcast and Cable Services, N.W.T. and Yukon, August 1989

	Radio (Originating)			Licenced Undertakings	Cable	
Location	Call Sign	Frequency	Class*	Licensee	Location	Licensee
N.W.T.						
Aklavik	CJAK-FM	106.9	LP	Kwtuchin Radio Soc.	Cambridge Bay	Ikaluktutiak
Alert	CHAR-FM	105.9	A	Maj. R.H. Adlington	Fort Smith	Gardtal Holding
Baker Lake	CKQN-FM	99.3	A	Qam. Naalauta	Iqaluit	Eastern Arctic TV
Chesterfield Inlet	CFCI-FM	107.1	LP	Sijaqpaluk Comm. Soc.		
Clyde River	CJCR-FM	107.1	LP	Akunnirmiut Broad.Soc.		
Coral Harbour	CJZS-FM	107.1	LP	Coral Harbour Radio Soc.		
Hay River	CKHR-FM	107.3	A	Hay River Community	Pangnirtung	Pangnirtung Cable
Inuvik	CHAK-AM	860	B	CBC	Pond Inlet	Robert James
	CKEV-FM	103.1	LP	Inuvik Broadcasting Soc.		
Iqaluit	CFFB-AM	1230	B	CBC	Yellowknife	Mackenzie Media
Rankin Inlet	CBQR-FM	105.1	A	CBC		
Sanikiluaq	CKSN-FM	106.1	LP	Sanikiluaq Broad. Soc.		
Whale Cove	CKWC-FM	106.1	LP	Issatikpaluk Radio Soc.		
Yellowknife	CFYK-AM	1340	B	CBC		
	CJCD-AM	1240	B	CJCD Radio		
	CKNM-FM	101.9	A	Native Communications Soc.		
Yukon						
Carmacks	CHCK-FM	90.5	LP	Carmacks Communications Club		
Dawson City	CFYT-FM	106.1	LP	Dawson City Comm. Soc.	Faro	Northern Tele-communication Systems Ltd.
Old Crow	CHOL-FM	90.5	LP	Old Crow Broadcasting Soc.		
Pelly Crossing	CHPE-FM	90.5	LP	Pelly Crossing Comm. Club		
Ross River	CHRV-FM	88.9	LP	Ross River Broadcasting Soc.	Watson Lake	Performance Committee
Teslin	CHET-FM	90.5	LP	Teslin Communications Club		
Whitehorse	CKRW-AM	610	C	Klondike Broadcasting Ltd.	Whitehorse	Northern TV
	CFWH-AM	570	B	CBC		
	CHON-FM	98.1	LP	Northern Native Braodcasting, Yukon		
	CHLA-FM	93.5	LP	Parliamentary Broadcasting		

* Class refers to transmitter power

AM:	B and C	50 km day, 20 km night
	LP (low power)	10 km day, 5 km night
	B	provides more protection from interference by other stations at night
FM:	A	24 km maximum radius
	LP (low power)	8 km radius (approximate)

Note: Carmacks, Old Crow, Pelly Crossing and Teslin also rebroadcast programs produced by the Northern Native Broadcasting, Yukon (NNB,Y) communications society.

Source: Canadian Radio-television and Telecommunications Commission Department of Communications

Table 11-3

Rebroadcast/Repeater Services, N.W.T. and Yukon; August 10, 1989

Northwest Territories	Radio — Licenced Undertakings					Television — Licenced Undertakings			
Location	Call Sign	Frequency	Class**	Program Source	Licensee	Call Sign	Channel	Program Source	Licensee
Aklavik	CBAK-AM	540	LP	CHAK-AM (Inuvik)	CBC	CBEX	13	CBC North	CBC
	N-FM*			CKNM-FM (Yellowknife)	Nat. Comm. Soc. of West NWT	N-TV*		CANCOM*	Aklavik Comm. Soc.
Arctic Bay						CIBA	9	CBC North	Hamlet of Arctic Bay
Arctic Red River	N-FM*	101.9	LP	Native*	Sam Lennie	N-TV*		CHCH	Atta Suvagug
Arviat	CBIG-FM	105.1	A	CBQR (Rankin Inlet)	CBC	CBEHT	9	CBC North	CBC
	N-FM*	96.5	LP	Native*	Arviaqpaluk	CFEP	4	CICB-TV (Cambridge Bay)	Arviaqpaluk
	BDU*				Arviaqpaluk				
Baker Lake						CIIS	4	CBC North	A. Tagoona
Broughton Island	QIKIQTAR		No Licence	CBC	CBC	CBEIT	9	CBC North	CBC
						CH2300	9	CBC North	Qikiqtarjuap Nalautinga
						CH2301	12	CBC North	Qikiqtarjuap Nalautinga
Cambridge Bay	CBIN-FM	105.1	A	CHAK-AM	CBC	CBENT	9	CBC North	CBC
						CH2550	13	CBC East	Inuit Broadcasting Corp.
Cape Dorset	CBIH-FM	105.1	A	CFFB-AM (Iqaluit)	CBC	CBEJT	9	CBC North	CBC
	BDU*			Hamlet of Cape Corset					
Chesterfield Inlet									
Clyde River						CFLT	9	CBC North	Sijaqpaluk Soc.
						CH2658	12	CANCOM*	Sijaqpaluk Soc.
Coppermine	CBIO-FM	105.1	A	CHAK-AM (Inuvik)	CBC	CH2290	9	CANCOM*	Arkunnirmiut Soc.
						CH2291	12	CANCOM*	Arkunnirmiut Soc.
						CBEOT	9	CBC North	CBC
Coral Harbour						CH2551	13	CBC East	Inuit Broadcasting Corp.
Fort Franklin	CBQO-AM	1230	LP	CHAK-AM (Inuvik)	CBC	CHCO	9	CBC North	Coral Hbr. Rad. Soc.
						CH2657	12	CANCOM*	Coral Hbr. Rad. Soc.
	N-FM*			CKNM-FM (Yellowknife)	Nat. Comm Soc. of West. N.W.T.	CBETT	9	CBC North	CBC

Table 11-3 *(Continued)*

Rebroadcast/Repeater Services, N.W.T. and Yukon; August 10, 1989

	Radio — Licenced Undertakings					Television — Licenced Undertakings			
Location	Call Sign	Frequency	Class**	Program Source	Licensee	Call Sign	Channel	Program Source	Licensee
Fort Good Hope	CBQE-AM	920	LP	CHAK-AM (Inuvik)	CBC	CBEST	9	CBC North	CBC
	N-FM*			CKNM-FM (Yellowknife)	Nat. Comm Soc. of West. N.W.T.				
Fort Liard	CHFL-FM	107.1	LP	CKYK-AM (Yellowknife)	Fort Liard Comm. Soc.	CFRD	12	CBC North	Fort Liard Comm. Soc.
	VF2022FM	101.9	LP	Native*		CH2820	2	CANCOM*	Fort Liard Comm. Soc.
Fort McPherson	CBQM-AM	680	LP	CHAK-AM	CBC (Inuvik)	CHAK	13	CBC North	CBC
		N-FM*		CKNM-FM	Nat. Comm Soc. of West. N.W.T.				
Fort Norman	CBQI-AM	920	LP	CHAK-AM (Inuvik)	CBC	CH2249	7	CANCOM*	Fort Norman
						CH2367	10	CANCOM*	Fort Norman
Fort Providence	CBQC-AM	1230	LP	CFYK-AM (Yellowknife)	CBC	CH2559	12	Native*	Fort Norman
						CBEBT	13	CBC North	CBC
	N-FM*			CKNM-FM (Yellowknife)	Nat. Comm Soc. of West. N.W.T.	STV-N*		CANCOM*	Snowshoe Inn
Fort Resolution	CBQD-AM	1150	LP	CFYK-AM (Yellowknife)	CBC	CBEV	9	CBC North	CBC
Fort Simpson	CBDO-AM	690	LP	CFYK-AM (Yellowknife)	CBC	CBEGT	9	CBC North	CBC
Fort Smith	CBDI-AM	860	LP	CFYK-AM (Yellowknife)	CBC	CBEAT	8	CBC North	CBC
	N-FM*			CKNM-FM (Yellowknife)	Nat. Comm Soc. of West. N.W.T.				
Gjoa Haven	CBIA-AM	640	LP	CBQR (Rankin Inlet)	CBC	CBERT	9	CBC North	CBC
						CH2552	13	CBC East	Inuit Broadcasting Soc.
Grise Fiord									
Hall Beach						CH2421	12	CBE East	Qarqarlimiut Broad.
						CH2420	7	CANCOM*	Qarqarlimiut Broad.
						CFBH	7	CANCOM*	Hall Beach Comm. Soc.
						CHHB	2	CHHB-TV	Hall Beach Comm. Soc.

Table 11-3 *(Continued)*

Rebroadcast/Repeater Services, N.W.T. and Yukon; August 10, 1989

	Radio — Licenced Undertakings					Television — Licenced Undertakings			
Location	Call Sign	Frequency	Class**	Program Source	Licensee	Call Sign	Channel	Program Source	Licensee
Hay River	CJCD-FM-1	106.7	A	CJCD (Yellowknife)	CJCD Radio Ltd.	CBEBT-1	7	CBC North	CBC
						MTV*		CANCOM*	Hay River Comm. Soc.
	CBDJ-FM	93.7	A	CFYK (Yellowknife)	CBC				
Holman	BDU*				Oluksaktok	CH2553	13	CBC East	Inuit Broadcasting Corp.
					Broadcast Soc.	CH2655	7	CANCOM*	Oluksaktok Broadcast Soc.
Igloolik	CBII-FM	105.1	A	CFFB (Iqaluit)	CBC	CBII	9	CBC North	CBC
Inuvik	N-FM*			CKNM-FM	Nat. Comm. Soc of West.	CHAK	6	CBC North	CBC
					N.W.T.	STV-N*		CANCOM*	Inuvik TV Ltd.
						N-TV			Inuvik TV Ltd.
Iqaluit						CFFB	8	CBC North	CBC
						CH2260	12	CBC North	Assoc. des Francophones
Jean Marie River	VF2056-FM	107.1	LP	CBC North	Jean Marie River Comm.	CH2589	2	CBC North	Jean Marie River Comm.
	VF2055-FM	101.9	LP	Native*	Jean Marie River Comm.				
Kakisa	VF2021-FM	107.1	LP	CBC North	Kakisa Broadcasting Comm.	CH2590	12	CBC North	Kakisa Broadcasting Community
	VF2020-FM	101.9	LP	Native*	Kakisa Broadcasting Comm.				
Lac la Martre	VF2033-FM	107.1	LP	CBC North	NiTs'I Da Ko Radio Soc.	CH2304	5	CBC North	NiTs'I Da Ko
						CH2592	13	CITV-TV (Edmonton)	NiTs'I Da Ko
		VF2054FM	101.9	LP	Native* Radio Soc.	NiTs'I Da Ko			
Nahanni Butte	VF2018-FM	107.1	LP	CBC North	Nahanni Butte Broadcast. Soc.	CH2591	12	CBC North	Nahanni Butte Broadcasting Soc.
	VF2017-FM	102.1	LP	Native*	Nahanni Butte Broadcast. Soc.				
Nanisivik	BDU*	1	LP	CANCOM*	Nanisivik Comm.				
Norman Wells	CBDW-AM	990	LP	CHAK (Inuvik)	CBC	CBEDT	9	CBC North	CBC

Table 11-3 *(Continued)*

Rebroadcast/Repeater Services, N.W.T. and Yukon; August 10, 1989

	Radio — Licenced Undertakings					Television — Licenced Undertakings			
Location	Call Sign	Frequency	Class**	Program Source	Licensee	Call Sign	Channel	Program Source	Licensee
Pangnirtung	CBIJ-FM	105.1	A	CFFB (Iqaluit)	CBC	CBEKT	9	CBC North	CBC
Paulatuk						CH2332	9	CBC North	Garrett Ruben
						N-TV*		CANCOM*	Garrett Ruben
Pelly Bay						CIKA	9	CBC North	Pelly Bay Broadcasting Soc.
						CH2554	13	CBC East	Inuit Broadcasting Soc.
Pond Inlet	CBIK-FM	105.1	A	CFFB (Iqaluit)	CBC	CBELT	9	CBC North	CBC
Rae-Edzo	CBQB-AM	1200	LP	CFYK (Yellowknife)	CBC	CFYK-1	10	CFYK-TV (Yellowknife)	CBC
	N-FM*			CKNM-FM (Yellowknife)	Nat. Comm Soc. of West. N.W.T.				
Rae Lakes	VF2019-FM	101.9	LP	Native*	Eddie Chocolate	CH2331	9	CBC North	Eddie Chocolate
						CBECT	9	CBC North	CBC
Repulse Bay	VF2046FM	107.1	LP	CBC North	Puiqpaluk Broadcasting				
Resolute	CBIL-FM	105.1		CFFB (Iqaluit)	CBC	CBEMT	9	CBC North	CBC
Sachs Harbour	VF2045FM	107.1	LP	CBC North	Naloonatkutuk Kikiktaqmi	CH2654	7	CANCOM*	Terrie Nokadlak
Sanikiluaq	CKSN-FM	106.1	LP	CBC North	Sanikiluaq				
Snowdrift	VF2026	101.9	LP	Native*	Snowdrift Radio Comm. Soc.	CFFT	2	CBC North	Snowdrift Community Radio Soc.
Spence Bay	CBIQ-FM	105.1	A	CBQR (Rankin Inlet)	CBC	CBEQT	9	CBC North	CBC
						CH2555	13	CBC East	Inuit Broadcasting Soc.
Strathcona Sound						CIIS	12	CBC North	Nanisivik
						CHST	9	CBC North	Nanisivik
Tuktoyaktuk						CBEPT	8	CBC North	CBC
Whale Cove						CH2333		CANCOM*	Issatikpaluk Radio Soc.
						CH2334	12	CBC North	Issatikpaluk Radio Soc.

Table 11-3 *(Continued)*

Rebroadcast/Repeater Services, NWT and Yukon; August 10, 1989

	Radio — Licenced Undertakings					Television — Licenced Undertakings			
Location	Call Sign	Frequency	Class**	Program Source	Licensee	Call Sign	Channel	Program Source	Licensee
Wrigley	CBQG-AM	1280	LP	CFYK (Yellowknife)	CBC	CH2329	9	CBC North	Wrigley Radio
	VF2025FM	101.9	LP	Native*	Wrigley Comm. Radio Soc.				
Yellowknife						CFYK	8	CBC North	CBC
Yukon									
Beaver Creek	CBDM-AM	690	LP	CFWH (Whitehorse)	CBC	CFBF	7	CBC North	Beaver Creek
						CIMR	13	CIBF (Beaver Creek)	Beaver Creek Community Club
		N-FM*			Tourism Ind. Asso.				
Burwash Landing	VF2024	90.5	LP	NNB,Y*	Burwash Landing Broadcasting Soc.				
Carcross	VF2039	90.5	LP	NNB,Y* and CFRW (Whitehorse)	Carcross Tlingit Radio Soc.	CFCZ	13	CFWH-TV (Whitehorse)	Carcross Broad. Soc.
	N-FM*				Tourism Ind. Asso.				
Carmacks	CBQF-AM	990	LP	CFWH	CBC (Whitehorse)	CFYC	13	CBC North	Carmacks
Dawson City	CBDE-AM	560	LP	CFWH	CBC (Whitehorse)	CBDDT	7	CBC North	CBC
	VF2049-FM	90.5	LP	CKRW (Whitehorse)	Dawson City Community				
Destruction Bay	CBDL-AM	940	LP	CFWH (Whitehorse)	CBC	CFDB	9	CBC North	Kluane
Elsa	CBDD-AM	560	LP	CFWH (Whitehorse)	CBC	CBKHT-1	9	CBC North	CBC
Faro	CBQK-FM	105.1	A	CFWH (Whitehorse)	CBC	CBDBT	8	CBC North	CBC
	N-FM*			CKRW (Whitehorse)	Klondike Broad.				
Haines Junction	CBDF-AM	860	LP	CFWH (Whitehorse)	CBC	CFHJ	13	CBC North	Shakwak Valley
	CHHJ-FM	90.5	LP	NNB,Y*		MTV*		CANCOM*	Shakwak Valley
	N-FM*				Shakwak Valley				
	N-FM*				Haines Junction Tourism Ind. Asso.				

Table 11-3 *(Continued)*

Rebroadcast/Repeater Services, NWT and Yukon; August 10, 1989

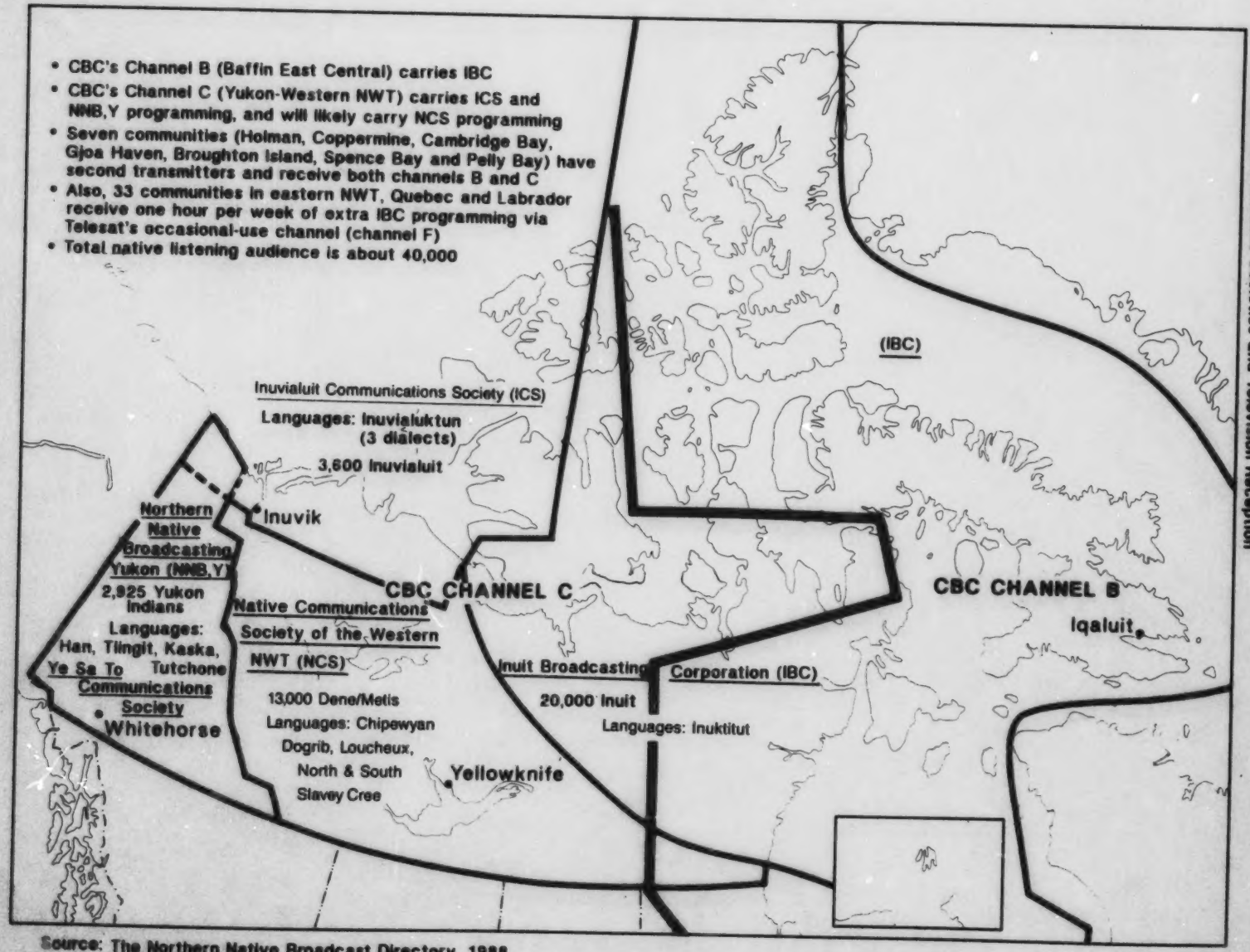
	Radio — Licenced Undertakings					Television — Licenced Undertakings			
Location	Call Sign	Frequency	Class**	Program Source	Licensee	Call Sign	Channel	Program Source	Licensee
Keno Hill									
Mayo	CBDC-AM	1230	LP	CFWH (Whitehorse)	CBC	CBKHT	13	CBC North	CBC
						CBKHT-2	7	CBC North	CBC
	VF2028FM	90.5	LP	NNB,Y*	Mayo Group Home Soc.				
Old Crow	VF2036-FM	100.1	LP	CBC North	Old Crow Broad. Soc.	CKRF	13	CBC North	Old Crow Communications Club
Pelly Crossing	VF2041-FM	105.9	LP	CBC North	Pelly Crossing Comm. Club	CFPC	12	CBC North	Pelly Crossing
Ross River	CBQJ-AM	990	LP	CFWH (Whitehorse)	CBC	CFRR-1	12	CBC North	Ross River Community Assoc.
						STV-N*		CANCOM*	Thomson Tel Video Co. Ltd.
	VF2035-FM	90.5	LP	NNB,Y*	Ross River Broad. Soc.				
Stewart Crossing	VF2048-FM	100.9	LP	CBC North	Stewart Crossing	CFCS	9	CBC North	Stewart Crossing
Swift River***	CBDX-AM	970	LP	CFWH (Whitehorse)	CBC				
Tagish						N-TV*		CBC North	Tagish Comm.
Teslin	CBDK-AM	940	LP	CFWH (Whitehorse)	CBC	CFTN-1	13	CBC North	Teslin Comm.
Upper Liard	VF2038	90.5	LP	NNB,Y* and CKRW (Whitehorse)	Liard Broadcasting Society				
Watson Lake	CBDB-AM	990	LP	CFWH (Whitehorse)	CBC	CBDAT	8	CBC North	CBC
	VF2027	90.5	LP	NNB,Y*	Liard Broadcasting Society				
Whitehorse						CFWH	6	CBC North	CBC
						NNB,Y*	6	NNB,Y* (through CBC North)	NNB,Y*

Table 11-3 *(Continued)*

Rebroadcast/Repeater Services, N.W.T. and Yukon; August 10, 1989

*	BDU	Broadcasting Distributing Undertaking
*	CANCOM	Canadian Satellite Communications Inc.
*	MTV	Multi-Channel
*	NNB,Y	Northern Native Broadcasting, Yukon
*	N-FM	New FM station. No dial frequency was assigned as of August 10, 1989.
*	STV-N	Scrambled TV decoder.
*	N-TV	New TV channel. Call sign and channel number were not assigned as of August 10, 1989.
*	Native	Native communications society
Note:		CANCOM was formed in 1981 to extend cable television service to remote and underserved Canadian regions. The CANCOM package includes four Canadian television stations, eight Canadian radio stations and four Detroit, U.S.A. network affiliates: WJBK (CBS), WDIV (NBC), WXYZ (ABC) and WTVS (PBS). Subscription can include varying combinations of radio and television signals.
**		Class refers to transmitter power radius
	AM: B and C	50 km day, 20 km night
	B	provides more protection for the nightime audience from interference by other stations LP (low power) 10 km day, 5 km night
	FM: A	24 km maximum
	LP (low power)	8 km (approximate)
***		Swift River is located at mile 710 on the Alaska Highway. The station is maintained to provide radio coverage in this region.
Note:		Most television transmitters in the N.W.T. and Yukon have a transmission radius of about 24 km.
Source:		Canadian Radio-television and Telecommunications Commission Department of Communications

Figure 11-1
Native Communications Societies and Television Reception


• CBC's Channel B (Baffin East Central) carries IBC
• CBC's Channel C (Yukon-Western NWT) carries ICS and NNB,Y programming, and will likely carry NCS programming
• Seven communities (Holman, Coppermine, Cambridge Bay, Gjoa Haven, Broughton Island, Spence Bay and Pelly Bay) have second transmitters and receive both channels B and C
• Also, 33 communities in eastern NWT, Quebec and Labrador receive one hour per week of extra IBC programming via Telesat's occasional-use channel (channel F)
• Total native listening audience is about 40,000
(IBC)
Inuvialuit Communications Society (ICS)
Languages: Inuvialuktun (3 dialects)
3,600 Inuvialuit
Inuvik
Northern Native Broadcasting Yukon (NNB,Y)
2,925 Yukon Indians
Languages: Han, Tlingit, Kaska, Tutchone
Ye Sa To Communications Society
Whitehorse
CBC CHANNEL C
Native Communications Society of the Western NWT (NCS)
13,000 Dene/Metis
Languages: Chipewyan Dogrib, Loucheux, North & South Slavey Cree
Yellowknife
CBC CHANNEL B
Iqaluit
Inuit Broadcasting Corporation (IBC)
20,000 Inuit
Languages: Inuktitut

Source: The Northern Native Broadcast Directory, 1988

12.0 Socio-Economic Infrastructure

12.1 General

The Northern economy consists of three distinct economies. The first is the wage economy, in which many non-natives are employed either in government or large-scale, non-renewable resource development projects. The second is the traditional or subsistence economy which is dominated by natives, although very few are involved exclusively in hunting and fishing; most have at least temporary work experience in the wage economy. The third is a social assistance economy, which benefits primarily native people, although few exist entirely on this income. Support payments are often used to buy harvest equipment — rifles, ammunition, snowmobiles, outboard motors — to continue traditional or subsistence activities.

The federal and territorial governments have recognized that the economy must be broadened and become less dependent upon the non-renewable resource sector, characterized by "boom-and-bust" cycles. Job creation is a major goal. However, the barriers to developing new opportunities in these frontier regions are formidable: small internal markets, vast distances to southern markets, little venture capital, and expensive credit.

12.1.1 Economic Development Agreements

The Economic Development Agreement (EDA) approach relies on a comprehensive and coordinated approach by federal and territorial governments to broaden and stabilize an otherwise volatile northern economy. EDAs are federal-territorial cost-shared programs, which include an enabling agreement and several subsidiary agreements that fund specific types of projects. Indian and Northern Affairs Canada is the lead federal agency to negotiate and implement the federal commitments. Other federal departments are involved with specific initiatives. Sector- or program-specific subsidiary agreements to which both levels of government commit funds, are managed by joint federal-territorial committees. These committees make funding decisions on applications (many related to business) to support projects. The decisions are based on criteria developed to meet the EDAs' goals.

EDAs and their subsidiary agreements are reviewed annually. These reviews may identify new strategies because of changes in the territorial economy, or lead to new subsidiary agreements or new funding is reallocated from one subsidiary agreement to another.

12.1.1.1 Canada/Yukon Economic Development Agreement

The Canada/Yukon EDA was signed in 1984. Four subsidiary agreements were concluded in 1985, a fifth agreement was signed in 1986 and a sixth was reached in 1987. Five subsidiary agreements expired in 1989; the sixth expires in 1992. The cost-sharing ratios between the federal and territorial governments were 90 per cent federal and 10 per cent territorial for four agreements, and 70 per cent federal and 30 per cent territorial for the other two agreements. Interim arrangements were introduced in Yukon after the EDA expired on March 31, 1989, to extend the federal-territorial cooperative programming. New programming is being planned for April 1991. When the sixth agreement expires in 1992, the federal government will have spent $18.9 million; the territorial government, $5.1 million.

The subsidiary agreements have funded projects in tourism, mineral resources, renewable resources, economic planning, mining and small business. Under the tourism subsidiary agreement, projects included restoring historical buildings, developing an interpretative strategy for a highway corridor and designing boat tours. Under the mineral resources agreement, projects included geological surveys and new placer mining technologies. The mining subsidiary agreement was intended to undertake projects that re-established base metal mining. In renewable resources, projects included forest inventories, salmon caviar processing, musk-ox ranching, arctic char pisciculture and wild berry jam production. Under the economic planning subsidiary agreement, projects were carried out in medium-term community development, human resource inventories, import substitution, appropriate technologies and women as entrepreneurs. The small business incentives subsidiary agreement supports new ventures such as expanding a fish processing plant, establishing a window frame plant and purchasing sportswear manufacturing equipment.

12.1.1.2 Canada/N.W.T. Economic Development Agreement

The five-year Canada/N.W.T. EDA was signed in 1987. Six subsidiary agreements were also signed, cost-shared 70 per cent federal and 30 per cent territorial. The total funding anticipated is $38.3 million ($26.8 million federal and $11.5 million territorial). Four subsidiary agreements are sponsored by Indian and Northern Affairs Canada (INAC) and two by Industry, Science and Technology Canada (ISTC). The INAC agreements expire on March 31, 1991, and the ISTC agreements on March 31, 1990.

Of the four agreements sponsored by INAC, the mineral development subsidiary agreement provides funding for geoscience projects, northern technology assistance and developing information for northern mining decision-making. This agreement allocates $7.0 million for projects. The renewable resources subsidiary agreement sponsored by DIAND, provides $5.0 million for business and product development and test marketing projects. Under this agreement a seafood processing plant has been expanded at Iqaluit, eiderdown resources have been assessed and seal products processing technology developed. The arts and crafts subsidiary agreement has provided $3.0 million for developing products, markets and helping artist and artisans. Under the agreement, distribution centres have been developed for soapstone and textiles for local artists and artisans, to ensure carvers have soapstone supplies, and to develop strategies to enhance the arts and crafts industry. The economic planning subsidiary agreement provides $2.0 million to hire community economic

planners, identify business opportunities and fund economic planning studies, such as a strategy for commercial renewable resources.

Of the two subsidiary agreements sponsored by ISTC, the tourism development subsidiary agreement provides $12.0 million for developing tourist markets and related facilities. Funding has been used to produce promotional displays and tourist features, plan boat tour operations and upgrade hotels. The small business development subsidiary agreement provides $9.3 million for feasibility studies to develop small businesses. Projects funded include constructing bowling alleys, a concrete block and brick manufacturing plant, and improving veterinary clinic facilities.

12.2 Associations and Organizations

12.2.1 General

Associations and organizations in Yukon and the N.W.T., as elsewhere, range from the purely social and completely informal to structured entities with distinct ties to the political, governmental or economic fabric. This section will deal only with those having a more or less formal nature and in particular with those which are registered under the Societies Act of the N.W.T. or Yukon.

Registration as a society provides members with protection from unlimited liability in the event of a lawsuit, since any acts of the society are deemed to be acts of that legal entity and not of its individual members.

To be registered, a society must comply with the requirements of the Societies Act of the territory concerned. In substance, these require a statement of the aims and objectives of the society, its location, its organization and a copy of its bylaws. In Yukon, societies are not required to file an audited financial statement. They are required to file financial statements reviewed by a professional accountant. Societies with less than $20,000 in revenues, less than $100,000 in assets and less than $5,000 in grants and donations are not required to file a financial statement. In the N.W.T., the report is required but the necessity for audit is less precisely spelled out. Failure to submit proper reports is cause for removal of a society's registration. An amendment to the Societies Act in the N.W.T. now allows for fees to be set by regulation instead of by statute.

12.2.2 Hunters' and Trappers' Associations

Among the more important registered societies, particularly in the N.W.T., are the hunters' and trappers' associations. In the N.W.T., virtually every Inuit settlement has an association and although these are still relatively new, having existed for the most part for only 12 years or so, they are playing an active role in many fields.

Many hunters' and trappers' associations function largely for the exchange of information and contact with the territorial government, while others are more active and engage in the marketing of furs and country foods, act as outfitters to visitors from outside and advise the territorial government on wildlife legislation.

One role of the hunters' and trappers' associations is the exercise of discretionary power in the distribution among their members of the right to hunt polar bear and musk-ox. Hunting these species is controlled by a quota, administered jointly by the territorial government and the associations. The associations allocate the quota among individual hunters in the community.

There are several regional groupings of hunters' and trappers' associations at various stages of development. The Keewatin Wildlife Federation was the first to be established; the Baffin Regional Hunters and Trappers Association followed and the Kitikmeot HTA is a more recently formed group of the associations in the central Arctic.

In general, there are no hunters' and trappers' associations, as such, in areas where the population is predominantly Dene and Métis; there, the functions played by these associations are usually dealt with by the band council. Under the Western Arctic Claim Settlement, the Inuvialuit have an Inuvialuit Game Council which has an advisory role in policies and regulations concerning wildlife.

As well as the hunters' and trappers' associations, there is an N.W.T. Outfitters' Association and a Barrenground Caribou Outfitters' Association. These associations, made up of non-natives, are concerned with hunting big game species other than musk-ox and polar bear. More recently, the territorial government recognized the N.W.T. Wildlife Federation, an umbrella group representing the interests of non-native user groups such as outfitters' and sportsmen's clubs.

The Yukon Trappers Association has been active in setting up regional councils. These in turn will foster the growth of local associations, a process which appears to be almost the opposite of the situation in the N.W.T. The local associations will not have control functions, but will provide training in cooperation with government and offer the opportunity for interchange of experience among their members. In Yukon, there is also a very active Fish and Game Association, whose membership consists largely of non-native hunters and anglers. There is also an Outfitters Association in which the 20 registered outfitters of Yukon hold membership.

12.2.3 Other Local Councils and Committees

In Yukon and the N.W.T., municipal councils are provided for under various acts. In the N.W.T., even quite small communities have settlement or hamlet councils which exercise authority and responsibility for municipal and significant community programs. Similarly, in Yukon, any unorganized community may be established as a hamlet with an elected advisory council.

In the N.W.T., committees of volunteers, formed generally under the auspices of the hamlet or settlement council, are active in health, education and a variety of social and economic concerns (e.g., recreation, land use, alcohol and drug education, employment creation, tourism promotion). These committees obtain program funds directly from their community councils, from territorial or federal governments, or from native associations.

Alcohol control committees are somewhat different in structure. These are essentially ad hoc committees formed to direct and administer a specific program. They are responsible to the N.W.T. alcohol and drug council, which has representation from all native organizations. Programs may range from purely local educational and control measures to professionally staffed detoxification and rehabilitation establishments.

Other locally important groups in the N.W.T. are the radio societies located in various settlements throughout the territory. They are voluntary organizations producing local radio programs for broadcast on the relay transmitters which carry CBC programs for most of the broadcast day. (See also Section 11.3.)

12.2.4 Regional Groupings

Regional councils, boards and committees are set up to provide effective communication between communities and the territorial government in the N.W.T. These councils are either comprehensive in scope, as with the Baffin Regional Council and the Keewatin Regional Council, or representative of special interest groups, as are, for example, the Inuvik Region Association of Local Education Authorities, the Keewatin Chamber of Commerce and the Northern Games Association* of the Central Arctic. Regional associations play a major role in providing policy advice to the GNWT and in managing delegated government programs (health care, education, etc.).

In the Inuvik region, regional Inuvialuit program and regulatory bodies have emerged under the Western Arctic Claim Settlement. The quest for greater local and regional autonomy is an objective of the regional bodies in the N.W.T., given the diversity of the society in different regions of the territory.

Recognition of the administrative problems attending such social, economic and cultural diversity resulted in the Fort Smith Region being divided into two separate administrative regions on April 1, 1981. The Kitikmeot Region now serves Inuit communities from Holman in the west to Pelly Bay in the east, from regional headquarters in Cambridge Bay. The Fort Smith Region continues to serve those communities in the upper Mackenzie Valley, the Liard Valley and the communities on Great Slave Lake. See Figure 3-1.

The Resource Development Policy of GNWT allows for the establishment of Development Impact Zone (DIZ) societies to gather views on major resource developments from communities likely to be affected by the development. DIZ societies advise the territorial and federal governments and the industry. All active societies currently receive financial support from the two levels of government and the industry. There are currently two active DIZ societies: the Beaufort-Mackenzie Delta and the Mackenzie-Great Bear (Shihta). An inactive DIZ society is in the High Arctic, incorporated under the Baffin Regional Council.

In Yukon, the growth of regional interest groups is less marked, though a number of territory-wide non-government organizations representing special interest groups exist; examples are the Association of Yukon Communities, Yukon Visitors Association and Yukon Family Services Association. In addition to these larger organizations, local organizations exist in several communities, such as the Whitehorse Housing Authority, the Klondike Visitors Association (in Dawson) and the Whitehorse, Faro and Watson Lake chambers of commerce.

12.2.5 Other Organizations

Societies organized in addition to those discussed above, include some devoted to purely recreational pursuits, either in connection with a particular sport or activity, or for the operation of a recreational centre. Others deal with the concerns of residents, or housing in general, or such specialized interests as those of single parents.

In the N.W.T., more than 800 societies have been registered; of these about 600 are functioning at present. In Yukon, there are 393 societies registered and of these approximately 100 are thought to be inactive.

12.3 Business Organizations

Although there is a wide range of commercial and industrial establishments in the N.W.T. and Yukon, the number in any one of the usual Standard Industrial Classification categories is small in comparison with southern Canada. Small businesses — often defined as firms with less than 50 employees or owner-operated — are very numerous. The *Yukon Business Directory* and the *Northwest Territories Business Directory* indicate the type of business carried on by establishment. The *Northwest Territories Business Directory* also indicates how many people are employed by an establishment. Table 12-1 lists the number of establishments by industrial group.

12.3.1 Yukon Businesses

Although the Yukon economy has traditionally depended on single industries, much of the current economic growth results from the development of locally controlled firms. These companies are involved in renewable resource industries, placer mining, mineral exploration, manufacturing and tourism.

In the renewable resources sector, new companies are involved in aquaculture, and caviar and wild berry processing. Much of the growing lumber industry is locally-owned; a Yukon-based consortium owns a 35-per-cent interest in a recently established forestry corporation.

Many small placer mining companies also operate in the territory, and approximately 50 per cent of them are locally owned.

Hard-rock mining continues to play a central role in the territory's economy, and helped make the Yukon economy one of the fastest growing in Canada in 1988.

* *"Northern Games" refers to athletic and traditional skills in this context.*

Two particular events boosted the territory's economy: the reopening of the Cyprus Anvil mine at Faro by Curragh Resources Inc. in the spring of 1986, and the opening of a hard-rock gold mine near Ross River in 1988. The territory currently exports gold, lead, and zinc, and has the potential to produce many other minerals. Except for placer operations, mining is still characterized by major corporations that effectively control the mines from outside the territory.

Large companies play a key role in several other industries as well. In transportation, the White Pass and Yukon Corporation is perhaps the primary example. It began as the White Pass and Yukon Railway, which provided rail transportation into the territory from the early 1900s until October 1982. Today it owns an ocean shipping division and a pipeline that ships petroleum products into the Yukon. (See Section 9.2.2 and Figure 9.1). Its subsidiaries offer road transportation over all-weather highways.

The territory's retail sector is composed of many smaller businesses. The Hudson's Bay Company operates only one department store in Whitehorse, leaving most retailing to independents. Four co-operatives operate in Yukon, at Old Crow, Teslin, Ross River and Whitehorse, and are owned by natives. These are independent of the Arctic Co-operatives Limited, a dominant force in the N.W.T.'s retail sector.

A new force in Yukon economic development are the newly-established Indian development corporations, such as the Yukon Indian Development Corporation, Tagish Kwan Corporation, and the Ross River Dena Corporation. These corporations were established to represent the financial interests of Yukon Indian people. They function more or less as holding companies, providing services that will enhance band development. They also invest in businesses that yield returns at the least possible risk, and offer Indian people employment opportunities.

In 1988, there were about 4,000 companies registered in Yukon. Many are listed in the *Yukon Business Directory*. According to Statistics Canada, 61 per cent of the business establishments in Yukon have fewer than 10 employees. (See Table 12-2). Although large non-renewable resource companies controlled from outside seem to dominate both territorial economies, there are more businesses that have fewer employees.

12.3.2 N.W.T. Businesses

Co-operatives were introduced into the North by government in 1960. For many co-operatives, one problem was the lack of a marketing agency for carvings. Such an agency would promote Inuit art and help cooperatives obtain cash to purchase carvings. With assistance from the federal government, the Canadian Arctic Producers was established in 1965.

Co-operatives also faced problems obtaining merchandise, and financing a year's supply. To address these problems, The Canadian Arctic Co-operative Federation Limited was created in 1972 to centrally control merchandising. In November 1982, the marketing agency (Canadian Arctic Producers) and the merchandising agency (The Canadian Arctic Co-operative Federation Limited) were amalgamated to form Arctic Co-operatives Limited, which operates the Northern Images retail outlets in Yellowknife; Inuvik, N.W.T.; Whitehorse, Yukon; Churchill, Manitoba; and Edmonton, Alberta. The company also operates a wholesale arts and crafts showroom in Winnipeg, Manitoba, and provides training in accounting, purchasing and other business development courses to its owner-member co-operatives.

Many co-operatives have had difficulty obtaining enough investment capital. This problem is being addressed through the N.W.T. Cooperative Business Development Fund, established in 1986. The fund was initially financed through the Native Economic Development Fund and now is a revolving fund to which member co-operatives pay an additional one per cent to build up their equity.

Most N.W.T. co-operatives are retail outlets that also serve as community general stores. They also offer specialized services such as hotel rooms, outfitting and guiding services, various municipal services and craft workshops.

In 1988 there were 34 active co-operatives with combined annual sales of around $43 million. There are about 400 permanent employees, and between 2,000 and 3,000 part-time or casual workers. In fiscal year 1988-89, between $9 million and $10 million was paid in wages and salaries.

It has generally been acknowledged that co-operatives have served as an important business and management training ground for many northern people, as they were locally autonomous bodies long before local municipal government was introduced to the Arctic regions. Thus, co-op boards with directors and a management structure helped familiarize many northerners with such things as annual elections and budgeting. As a result, many other small businesses which have opened in the North have benefited from employing people who have learned management and marketing skills from co-operative employment.

The most dominant force within the N.W.T. retail structure, for both food and non-food items, is the Northern Stores Inc. (formerly the Northern Stores Division of Hudson's Bay Company). Today there are 41 retail outlets operating in the N.W.T. and one in Whitehorse, Yukon. All of these outlets are supplied from company warehouses in southern Canada. These warehouses reduce the need for the local retailer to buy and store large volumes of food, which keeps costs down. The company also owns its own a supply ship which is used for summer resupply in eastern N.W.T.

As of 1988, there were 4,697 companies registered in the N.W.T., of which 1,200 were incorporated in the territories. Many are listed in the *Northwest Territories Business Directory*. Small businesses are predominant. According to Statistics Canada, 61 per cent of all business establishments in the N.W.T. have less than 10 employees. See Table 12-2.

A business form that is active in the territories is the development corporation. Native-owned development corporations range from the community/band-operated Rae Edzo Development Corporation to the four regional organizations — the Nunasi Corporation in eastern N.W.T., the Inuvialuit Development Corporation in northwestern

N.W.T., the Metis Development Corporation and the Denendeh Development Corporation in western N.W.T. These corporations provide managerial and financial assistance to operating divisions active in many fields, including the owning and managing of real estate, operation of taxis and hotels, labour contracting, and brokerage in the construction industry. In eastern N.W.T., Nunasi Corporation is also becoming involved in training its people.

12.4 Business Regulation and Taxes

12.4.1 Licences and Regulations

In the N.W.T., business licences are the responsibility of municipal (including hamlet) councils under the authority provided by the *Municipal Act*. In unorganized areas, the Government of the Northwest Territories retains the licencing function under the provisions of the *Business Licence Act*. These provisions apply to essentially all business except direct sellers (i.e., door-to-door vendors) who are controlled by the GNWT under the *Consumer's Protection Act*, and hunting and trapping. Entry into hunting and trapping is dealt with under the *Northwest Territories Wildlife Act* administered by the Department of Renewable Resources.

Native residents of the N.W.T. have traditional hunting and trapping rights but still require a General Hunting Licence. To sell wild meat commercially, they must obtain tags issued by the Department of Renewable Resources, but controlled and distributed by local hunters' and trapper's associations according to quotas.

Non-residents may apply for a licence after two years' residence in the N.W.T.

In Yukon, the only businesses that do not require business licences are newspaper publishing, mineral prospecting, developing mines and exploring for oil and gas. Otherwise, business licences are required in all areas of Yukon. Most limited corporations must be registered according to provisions of the *Business Corporation Act*. Personal property transactions resulting in liens against individuals and corporations for vehicles, equipment, etc., must be registered under the *Personal Property Security Act*. Highway lodges, hotels and motels must follow operating requirements, closure procedures, guest registration, etc. as stated in the *Hotel & Tourist Establishments Act*. Building permits are required before constructing, moving or altering a building, including doing electrical and plumbing work. Any business or person intending to sell liquor must comply with the provisions of the *Liquor Act*. Licensing must be carried out and approval for liquor licences received before transferring the ownership of licensed premises, or before beginning construction of new premises. Everyone who operates a place of public assembly or public eating establishment, or provides public accommodation, must meet the provisions of the *Public Health Act* and Regulations. Public facilities are regularly inspected. Every Yukon employer must register with the Worker's Compensation Office and annually pay the required payroll assessment.

12.4.2 Taxes — Personal, Land, Business

Taxation in the two territories is similar in many ways. Both territories levy income and corporate taxes which are collected by the federal government acting on behalf of the territories.

In the N.W.T., there are no sales taxes or business taxes, but tobacco and fuel, other than heating fuel, are taxed. Eight tax-based communities collect municipal taxes: Iqaluit, Fort Simpson, Fort Smith, Hay River, Inuvik, Norman Wells, Pine Point and Yellowknife. The GNWT collects property taxes in all other communities. Municipalities with bylaws issue business licences and collect all fees. The GNWT issues business licences and collects fees for businesses operating where no business licence bylaws are in effect.

In the Yukon, there are no sales taxes, but taxes apply to liquor, tobacco, fuel oil (with certain exceptions), gross premiums received by insurance companies and real property. Exempt from property taxes are trailers or mobile homes registered under the *Motor Vehicle Act*; unsurveyed, unoccupied Crown land; any improvements primarily to beautify property; Crown or municipal property; and land and buildings used for divine service, public worship, religious education or community service. Administering property taxes is the responsibility of municipalities. Other Yukon territorial government sources of income include fees for business licences, beer and liquor licences, certificates of incorporation or amalgamation, and utility charges.

In the N.W.T., personal income taxes are levied as a percentage of basic federal tax and corporate income taxes as a percentage of taxable income. The personal income tax rate is 44 per cent and the corporate tax rate is 10 per cent for corporations with over $200,000 net income and 5 per cent for Canadian corporations with under $200,000 net income.

In Yukon, the personal income tax rate is 45 per cent; the general corporate tax rate is 10 per cent and the small business rate is 5 per cent. If the corporation is in manufacturing and processing, the rate is 2.5 per cent.

Neither territorial government collects taxes or royalties on mineral exploitation. However, the federal government collects royalties under several acts. Under the *Yukon Placer Mining Act* a 2.5 per cent royalty is assessed on the value of gold shipped from Yukon. Under the *Yukon Quartz Act* and the *Canada Mining Regulations*, which pertain to the N.W.T., a royalty is assessed when a mine's annual profits are more than $10,000. Profits of more than $1 million and more than $5 million have higher royalty rates. Royalties are also collected under the *Territorial Coal Regulations*.

12.5 Health Facilities

In Yukon, the Medical Services Branch of the Department of Health and Welfare provides and administers major public health programs, and operates and maintains hospitals, community medical centres and nursing stations. Preliminary discussions have been held on the possibility of devolving federal responsibilities to the territories. In the N.W.T.,

federal government responsibilities for health facilities, programs and insurance were transferred to the territorial government on April 1, 1988.

12.5.1 Institutions, Location, Size, Services

In the N.W.T., the GNWT makes health care available at hospitals, health centres and public health units. The public is involved in managing the health care system through regional hospital and health boards and community health committees. Health services focus on community and public health, but all N.W.T. residents receive a full spectrum of services, including treatment, environmental health services and other health insurance-related benefits. Health services are delivered by professionals including community and hospital nurses, technicians, therapists, doctors, dentists and health administrators.

Hospitals provide in-patient and out-patient services, and are the central point for providing other health services to communities. The N.W.T. has six hospitals:

Stanton Yellowknife Hospital	135 beds	Yellowknife
Baffin Regional Hospital	36 beds	Iqaluit
Inuvik Regional Hospital	45 beds	Inuvik
H.H. Williams Memorial Hospital	50 beds	Hay River
Fort Smith Health Care	25 beds	Fort Smith
Fort Simpson Hospital	12 beds	Fort Simpson

The Stanton Hospital provides laboratory services for other territorial hospitals and nursing stations. It has staff specialists in many areas, including obstetrics, gynaecology, pediatrics, psychiatry, ophthalmology, orthopedics and internal medicine. An audiology department operates a deafness detection program and trains technicians. Procedures that cannot be done at the Stanton Hospital are referred to hospitals in southern Canada.

A long-term care facility in Inuvik has 2 beds for respite care and 14 beds for long-term care. A detoxication unit in Yellowknife is administered by the Northern Addiction Services, a unit funded by the N.W.T. Hospital Insurance Services.

The N.W.T. has 42 community health centres, which operate under the direction of a registered nurse, and usually contain between two and six holding beds for the care of patients awaiting to be evacuated to a hospital. Five public health units operate under the direction of a registered public health nurse, and carry out public health and preventive medicine programs.

Yukon's five hospitals are located in Whitehorse, Mayo, Faro, Watson Lake and Dawson City. There is also a nursing station at Old Crow. All facilities combined have a total of 159 beds and 42 cribs. In addition, there are health stations at Beaver Creek, Burwash Landing, and Upper Liard, as well as health centres (staffed by public health nurses) at Carcross, Destruction Bay, Haines Junction, Whitehorse, Teslin, Watson Lake, Ross River, Faro, Carmacks, Pelly Crossing and Mayo. Existing services are augmented by visiting specialists in such fields as internal medicine, pediatrics, otolaryngology, dermatology, oncology, ophthalmology and orthopedics. Clinics are held several times a year in Whitehorse by specialists from outside Yukon.

12.5.2 Health Programs, Insurance, Scope, Impact

In Yukon, the Medical Services Branch of Health and Welfare Canada provides and administers major programs in public health, including child and maternal care, infectious and chronic disease control, school health (including dental), environmental and occupational health and health education. Dental service is provided by private practitioners and by therapists in the school dental program.

Through expanded medical services and health education, the incidence of tuberculosis, measles and infant mortality have steadily declined. Morbidity and mortality rates within Yukon closely parallel national averages. Accident, violence and substance abuse rates remain concerns, particularly among natives. (See Section 3.2). Health awareness has been helped by the establishment of a health resource centre and library for professionals, schools, volunteer agencies and the public.

In the N.W.T., comprehensive prevention and health promotion services are of prime importance since much of the population is scattered in isolated and remote communities. Programs are available in maternal and child welfare, disease prevention and immunization, family life, nutrition, education to promote healthy lifestyles, environmental health, and other public health issues. These programs are accessed through local hospitals, health centres (nursing stations), public health clinics and offices operated by regional hospital and health boards with the support of the Department of Health.

For hospital and medical insurance the GNWT has an agreement with the federal government under conditions of the *Canada Health Act*, which require that medically necessary services performed by a physician or hospital be insured and that the benefits be:

- universal (all residents are eligible);
- portable (benefits extended beyond N.W.T. boundaries);
- accessible (no barriers to reasonable access);
- comprehensive (covers all medically required and recognized services); and
- publicly administered (administered by the government on a non-profit basis).

In addition to the medical and hospital insurance benefits, the GNWT has introduced a policy of supplementary benefits. These benefits may be specific to age, ethnicity or illness, and each carries its own conditions. Under supplementary programs the Department of Health also administers the federal government's Indian Health Policy for Status Indians and Inuit.

A broad range of medically necessary in-patient and out-patient services is available for N.W.T. residents. These are authorized by the *Territorial Hospital Insurance Services* (THIS) *Act* and the *Medical Care Act*. These services may be accessed through a variety of facilities:

doctor's office, a local hospital or health centre, regional hospital, or an approved specialized facility outside the N.W.T. The services include homecare; rehabilitation services; long term care; detoxication; and institutional and mental health services. Community mental health is provided by the Department of Social Services as a prevention and community intervention and support program.

Yukon Hospital Insurance Services and the Yukon Health Care Insurance Plan are the responsibility of the Health Services Branch of the Yukon Department of Health and Human Resources. These plans provide insured services to residents, without geographic restriction. Medically necessary transportation expenses are paid for residents of Yukon from the point of referral to appropriate treatment centres in Yukon, Vancouver or Edmonton. Supplementary benefits are also available for cancer and psychiatric patients. The Yukon government also administers a comprehensive drug benefits program, chronic disease and disability programs. Monthly insurance premiums for medical coverage have been eliminated.

12.6 Social Services

12.6.1 Responsibilities

Social services are the responsibility of the territorial governments to the same extent as in the provinces. Funds are provided by the federal government under the Canada Assistance Plan to cover 50 per cent of the costs of public assistance and welfare services expenditures. The federal government also funds Family Allowances and Old Age Security, and operates the contributory Canada Pension Plan.

The N.W.T. Department of Social Services helps individuals, families and communities according to their needs. The department has four divisions: Family and Children's Services; Corrections; Community and Family Support; and Alcohol, Drug and Community Mental Health Services.

Family and Children's Service oversees day care services, and provides protection and alternative care to children, and to victims of family abuse. These services are delivered through a network of community practitioners and by financially supporting groups and organizations. The division licenses and prescribes regulations for child day care facilities. It also provides start-up grants and operating contributions for non-profit day care centres and family day care homes, and day care subsidies to eligible parents.

Corrections provides institutional and community correctional services for both adult and young offenders. The division operates probation, parole and other programs, such as Fine Options, Victim-Offender Reconciliation and Restitution Alternative.

Community and Family Support Services assists the aged, handicapped and financially troubled families. The division also arranges for the devolution of social services to local community councils. It also assesses the needs of both aged and handicapped persons, and develops legislation.

Alcohol, Drug and Community Mental Health Services provides funding for community-based treatment, rehabilitation and prevention programs. Programs are directed specifically toward youth in 18 communities. Clinical services include assessment, treatment and consultation for children and youth with severe emotional, behavioral and psychological disorders. It also provides clinical evaluation and therapeutic intervention for children who need care and adolescents in trouble with the law. Prevention and counselling programs are funded in 38 communities.

In Yukon, social services are the responsibility of the Department of Health and Human Resources. The department provides several programs.

Services for children and families are delivered by the Community and Family Services Branch. Services for children-in-care are delivered by the Placement and Support Services Unit. Financial assistance is available through the Day Care Subsidy Program to working parents whose incomes fall within the lower end of the salary spectrum. Youth services are provided to young offenders before the courts or on probation by the Juvenile Justice Branch.

Services for seniors include the Pioneer Utility Grant which is an annual grant of $600 available to Yukon seniors who live in their own homes, owned or rented, without government subsidy. A wide range of personal and financial counselling services is offered, as well as information about the range of both Yukon and federal government programs available to seniors. Encouragement and support are provided in the development of community senior citizens' programs such as the Klondike Senior Citizens Association in Dawson, the Golden Age Society in Whitehorse and the Seniors Information Centre in Whitehorse which is operated by the Yukon Council on Aging. The department also cooperates with the Whitehorse Transit System in offering a specialized dial-a-ride transportation system within Whitehorse for senior citizens and the disabled who may have difficulty using the regular transit system.

An Alcohol and Drug Services unit manages and coordinates programs for the prevention and treatment of alcohol and drug problems. Programs include out-patient counselling, group therapy, assessments, referrals, follow-up and consultation. Prevention programs focus on public awareness campaigns regarding the use and abuse of alcohol and other drugs. Rural services programs involve community workers in education and awareness campaigns, training, consultation and community development, counselling and referrals for Yukoners of all ages.

The Employee Assistance Program assists employers in dealing effectively with an employee who has a problem with alcohol or drugs through the development of policies and training seminars, and suggests effective methods of confidential referrals to alcohol and drug counsellors.

Vocational rehabilitation services include comprehensive assessments plus social, medical and vocational counselling, medical rehabilitation and prosthetic services, training allowances, tuition, supplies, transportation costs and on-the-job training arrangements.

Regional Services provides community and family services and services to seniors throughout rural Yukon communities.

12.6.2 Social Service Facilities

The territorial governments operate a broad range of receiving and group homes and offer accommodation to senior citizens.

The N.W.T. has 11 departmentally owned group homes for young offenders, children-in-care and children with special needs. A residential treatment centre for children and youth with severe behavioral and emotional problems was established in Yellowknife in 1988. Transition houses, community crisis centres and safe homes are located in 10 communities, including Yellowknife, Fort Smith and Iqaluit.

There are five correctional facilities; three for adults and two for young offenders. Group homes for handicapped adults are in Yellowknife and Iqaluit. Twelve facilities provide self-care housing for senior citizens. Another five personal-care facilities are in Yellowknife, Aklavik, Fort Providence, Rae and Fort Smith.

To combat alcohol and drug abuse two residential treatment and rehabilitation centres offer bed space for 22 clients. These centres are in Yellowknife and Inuvik.

In Yukon, there are four child welfare group homes and a receiving home in Whitehorse and a combined group home/receiving home in Watson Lake. In addition, there are three facilities in Whitehorse serving youth offenders.

Day care centres and family day homes are available. Licensed centres or day homes meeting established standards for health and medical, nutrition, safety and program activities and physical condition are subsidized under the Day Care Subsidy Program.

There are two senior citizens' lodges. The Norman Macaulay Lodge in Whitehorse, with a 50-bed capacity, provides care ranging from fully supervised personal care to accommodation for the self-sufficient. Meal service and limited day care are also available. The Alexander McDonald Lodge in Dawson City offers all these services except fully supervised personal care.

The Alcohol and Drug Services program operates a detoxification centre in Whitehorse and funds a privately operated residential treatment centre.

Funds are provided to the Yukon Family Services Association for family counselling and education programs, to the Child Development Centre, (which provides services to children with special learning disabilities), to the Challenge Community Vocational Alternatives (formerly the rehabilitation centre) to the Association for Community Living, the Learning Disabilities Association of Yukon, Yukon Special Olympics, the Yukon Women's Transition Home, and to the Crossroads Alcohol Treatment Centre.

12.6.3 Problems and New Approaches

Many N.W.T. communities have high unemployment rates because of few available jobs and few qualified northerners for existing jobs. This has led to widespread dependence on government assistance. The low English literacy rate keeps many northerners out of the work force. Unemployment and the shortage of adequate housing also contribute to many other social problems. The government, native organizations and community leaders have identified that communities must be involved in finding solutions to social problems. Local control is being encouraged through the creation of divisional boards of education and regional health boards. As well, the GNWT is actively encouraging community governments to assume responsibility for delivering programs and services. Territory-wide initiatives to combat social problems include innovative economic development strategies, a literacy strategy, and an emphasis on employment training for social assistance recipients. Other GNWT programs are designed to combat specific problems, such as alcohol addiction and suicide.

In Yukon, alcohol abuse is recognized as one of the most serious problems, and has prompted many organizations inside and outside government to tackle the challenge of reducing alcohol consumption. Alcohol and Drug Services, a unit of the Department of Health and Human Resources, has embarked on a multi-media public awareness campaign. In several communities outside Whitehorse, Indian bands, community groups and organizations are cooperating to find community-based solutions. The Council for Yukon Indians Social Programs, along with the Yukon Human Rights Commission, has improved the quality of life for many Yukoners and thereby removed the source of some social problems.

In the N.W.T. the *Liquor Act, 1984* provides a statutory base for liquor control systems that have been adopted by several communities. In 1989, 12 communities had some restrictions on alcohol consumption and sales, and 16 others had total prohibitions. In Yukon the *Liquor Act, 1971* allows a community to restrict alcohol consumption upon application to the Liquor Corporation. Indian bands can also apply to prohibit liquor on reserve lands, and in 1989, one band had been granted a prohibition on alcohol consumption within a five-mile radius. Both territories provide for "off-sales" which allows a person to purchase and remove an alcoholic beverage from a licensed liquor establishment without consuming the beverage on the premises. In Yukon off-sales beer is marked up 20 per cent, and liquor and wine by 15 per cent. In the N.W.T. only beer can be sold as off-sales and mark-ups are not mandatory.

12.7 Educational Facilities

12.7.1 Schools — Location, Grades, Enrolment

The range of educational opportunities in Yukon and the N.W.T. is constantly being broadened. All communities now have schools for the lower grades and grade levels are being raised as rapidly as possible to reduce the number of students who must leave home for schooling.

In the N.W.T. all communities provide schooling to at least Grade 9. The five territorial administrative regions — Baffin, Fort Smith, Inuvik, Keewatin and Kitikmeot — are served by regional high schools offering education up to grade 12. In September 1988, 13,055 students were enrolled in territorial schools. In many communities, primary grades are taught in native languages. Cultural programs keep traditional lifestyle skills. Native language, history and culture programs are being developed for territorial high schools.

High schools in the N.W.T. follow the Province of Alberta high school curriculum. Students can earn diplomas at three levels: general, advanced and advanced with excellence. In 1988 there were 216 high school graduates; 84 had attained either advanced or advanced with excellence levels.

Arctic College, the territory's college system, has a campus in each of the five N.W.T. regions, in Fort Smith, Inuvik, Yellowknife, Rankin Inlet and Iqaluit. It offers more than 20 programs, including short-term adult upgrading, technical and apprenticeship programs, and two- and three-year diploma programs in areas such as renewable resource technology, journalism, recreation leadership and teacher training. In 1988, 1,042 full-time and 2,004 part-time students were registered in Arctic College programs across the N.W.T.

In the 1988-89 academic year, 950 N.W.T. students were enrolled in post-secondary studies; 206 were in technical programs in the N.W.T., and 744 in degree and technical institutes in southern Canada. A student financial assistance program, managed by the Department of Education, provides financial assistance for qualified students.

In Yukon, there are 25 schools, with at least one in every community. Total enrolment in these schools (kindergarten to grade 12) was 4,881 in January 1989. The total number of teachers was 331. Regional high schools have been established within reasonable distances of the communities.

Yukon College is the only post-secondary institution in Yukon. As a community college, Yukon College offers programming varying from adult academic upgrading through trades and technical courses to multi-year programming in various business and technical fields as well as an expanding range of university transfer programs. Programs are both part-time and full-time, and can be delivered either centrally or at community campuses and mobile units. Campuses are now in most rural communities, offering both part-time and full-time courses. Approximately 600 full-time and 500 part-time students were enrolled in Yukon College programs during 88-89 program year.

12.7.2 Programs

In the N.W.T., aspects of the basic school curriculum have been refined. Health education became mandatory September 1987, and science programs in elementary, junior high and high schools were reorganized and made relevant to the northern environment. Mathematics now provides more "hands-on" activities that are also relevant to the territory. New programs in practical arts include industrial education, business education and home economics. Diversified industrial technology programs are replacing specialized vocational education.

Two alternative programs — Community Occupational Program and Senior Practical Program — have been developed for students who:

- are 15 years of age and older;
- are several years below the "expected" academic level;
- are likely to drop out before reaching Grade 10;
- want to be in such a program; and
- have written parental consent.

In both programs students spend half the time in classes in English, mathematics and career and life management, and the other half in work experience and school shops.

The programs differ primarily in the academic levels required for entry, the focus on attaining a particular job, the need for special school facilities, and whether students live at home or in a residence.

The N.W.T. Artists in Schools program began in 1987. It is designed to enhance the territorial fine arts curriculum and give students hands-on experience in meeting and appreciating local, regional and national professional artists and crafts people.

In social studies, teacher resources on land claims and related topics have been developed. A new course, Northern Studies, has been designed to recognize the N.W.T.'s rich cultural and linguistic diversity and the history and heritage of its people.

Increasing aboriginal language skills is a priority. To accomplish this, elementary language arts curriculums for Dene languages and Inuktitut have been improved, and all regions and school districts are increasing the number of bilingual teachers. In the Baffin Region only 32 of 169 teachers are bilingual. Efforts are also being made to increase the number of aboriginal teachers. In 1989, there were 103 aboriginal teachers, out of 708 in the N.W.T. Arctic College has about 30 full-time aboriginal students enrolled in teacher education programs, and about 150 enrolled as part-time students in the field program.

In the N.W.T., 893 students received post-secondary grants and/or loans in 1988-89. Students schooled in the N.W.T. qualify for basic and supplementary grants. Basic grants were awarded to 268 students and supplementary grants to 325 students. Primary and secondary loans were given to 552 students. Some students qualified for both a grant and a loan.

In Yukon, students have several program options in addition to the regular school program. Whitehorse offers French immersion and French First Language

Programs. Thirteen Yukon schools have native language courses, with native instructors. Several offer alternative programs in grades 9 to 12. A pilot project for teen mothers began in 1989, as did a special program for pre-teen and early-teen students having problems with school. Local curriculum materials continue to be developed to supplement the general curriculum, providing a Yukon-oriented learning context.

Several schools offer native programs with the support of the Department of Education, Advanced Education and Manpower. These programs include trapping, native dancing, crafts and native outdoor education. To help present these programs, several publications by the Yukon Native Language Centre are used. Cross-cultural co-ordinators are employed in several Yukon communities to help the school system and parents work together to give Indian children a better education. A Native Teacher Training Program began in 1989 to encourage more Indian people to become teachers in Yukon schools. A three-year diploma program for Native language instructors is also offered.

Yukon students may also apply for financial assistance to continue with their education in post-secondary institutions. This assistance is available in the form of Yukon grants, Yukon Training Allowances or a certificate of eligibility for a Canada student loan. In 1988-89, 365 students received a Yukon post-secondary education grant for use outside Yukon. Another 360 received Yukon post-secondary allowances for study in Yukon. Approximately 260 students were certified as eligible for Canada Student Loans.

12.7.3 Vocational Training

Arctic College in the N.W.T. offers vocational and apprenticeship programs, including carpentry, mechanics, welding, plumbing, electronics and telecommunications, housing maintenance, food services, small business management and community services programs. Thebacha Campus in Fort Smith provides many of these programs through an extension division. The Nunatta Campus (Iqaluit) and the Aurora Campus (Inuvik) offer courses in teacher education, recreational leadership, academic upgrading, secretarial arts, northern business management and resources management.

Thebacha Campus, with its state-of-the-art trades complex, offers the most introductory trades and apprenticeship training courses. It offers training for the oil and mining industries, apprenticeship training in welding, plumbing and industrial warehousing, which were previously only available through Alberta and B.C. institutions. As well, electronics technicians graduated from the North Warning System Pre-Electronics course and were employed by NorthwesTel on the North Warning System.

In 1988 there were 431 apprentices; of these 51 per cent were of native ancestry. Of 126 journeyman certificates issued in 1988, 39 carried the Interprovincial Red Seal. Thirty-four apprentices graduated from the N.W.T. apprenticeship program, 25 from the private sector and 9 from the N.W.T.

In Yukon, the Department of Education administers training programs and apprentice certification. In 1988, 31 tradespeople were certified as journeymen through the trades qualification route, and 15 apprentices were certified as journeyman after completing apprenticeship courses. Of these 46, 32 received Interprovincial Red Seal standards.

12.8 Employment and Working Conditions

12.8.1 General

In the N.W.T. and Yukon unemployment statistics provided by Statistics Canada distinguish between native and non-native residents. Ethnicity in the income-producing sectors of the northern economy can also be identified because employment conditions differ for the native and non-native population. This is due in part to the fact, common to all parts of Canada, that there are relatively few employment opportunities for unskilled workers. Many native people are in this category. The northern native population has significantly lower levels of education and employment skills. This is related to a number of factors, including cultural differences and difficulty of access to schooling.

Outside the larger centres there is much less true unemployment because many of the traditional activities practised by the people are both productive and relatively labour-intensive. The activities of those persons engaged in traditional pursuits on a full- or part-time basis are often not included in analyses of the labour force because they are not seen as participating directly in the economy. Thus, the treatment in this section on labour relates principally to the wage economy of the North. For the role which hunting and trapping play outside this sphere, see Sections 3.5 and 7.3.

Table 12-3 shows the estimated size of the working population and the labour force in Yukon in 1986, 1987 and 1988 and the N.W.T. in 1986 and 1988. Whereas average annual rates of unemployment in Canada for 1986, 1987 and 1988 were 9.5, 8.8 and 7.8 respectively, unemployment rates in the North have been far above these national averages. See Table 12-3. It should be noted that measuring unemployment in the North is particularly difficult.

12.8.2 Current Employment and Prospects

As in the rest of Canada, employment in Yukon and the N.W.T. fluctuates each year and each season. In the N.W.T., goods-producing industries accounted for about 20 per cent of all employees in 1988; in Yukon, about 16 per cent. Changes by major industry groups are noted in Table 12-4 for 1986, 1987 and 1988.

Both territories have emphasized developing employment opportunities in goods-producing activities, especially the hydrocarbon industry in the N.W.T. and the hard-rock mining industry in Yukon. In 1988 both sectors employed about 4,500 people directly.

For the N.W.T. in 1986, Statistics Canada reported a native labour force of 10,200 and a non-native labour force of 14,165. The unemployment rate among natives in the labour force was 25.5 per cent and for non-natives 5.1 per cent. In Yukon the native labour force was 2,230 and the non-native labour force was 11,640. The

unemployment rate among natives was 31.6 per cent and for non-natives 9.8 per cent. In order to improve native participation in the labour force both territories have developed training on-the-job programs. The territorial governments, the trainee and employer contract for practical employment and skill training. There are also several federal initiatives to encourage economic development, and by implication, employment of northern residents, particularly natives, some of which are described in Section 12.1.

The most important mine in Yukon in 1988 was the Curragh Resources mine at Faro. Despite a month-long strike, estimated zinc production about equalled 1987 levels. Other hard rock mines have not done as well as Curragh. In mid-1988 the Mount Skukum gold mine closed and in January 1989, the United Keno Hill Mine at Elsa also shut down. The shutdown at Elsa resulted in the loss of 176 jobs, on top of 50 layoffs in November 1988. Since the mine was also the major employer in the town of Elsa, its closure had a major impact on the local economy.

Although construction employment decreased in 1988, major building projects are scheduled. In Whitehorse, residential construction is continuing and the federal government has committed funds to construct a new federal office building in 1990-91.

Service sector activity has generally increased in response to the sharp growth in the Yukon economy since 1986. Increases have been recorded in electricity generation, restaurant receipts, retail sales, the value and volume of real estate transactions, and banking activity. The greatest employment gains were in trade, business and personal services, and education and health services.

Much of the growth of the N.W.T. economy in the first half of the 1980s had been led by the non-renewable resource sectors and by government spending. The subsequent decline in world oil prices and changes in energy policy slowed that economy. The most significant employment increases during the period 1987 to 1988 occurred in the wholesale and retail trade sector. Community, business and personal services increased their employment as did the finance insurance and real estate sector.

Mining accounts for about 10 per cent of the jobs in the two territories. Many of these jobs are now threatened. The closure of the Pine Point Mine and the Canada Tungsten Mine involved the loss of about 700 jobs. Based on current rates of production, the mine at Nanisivik is expected to close in 1996. However, the sale of Cominco's Con Mine in Yellowknife did not mean any jobs were lost; in fact, the new owner, Nerco Minerals of Fairbanks, Alaska, has expanded moderately.

In the oil and gas industry evidence shows the Beaufort-Delta region contains substantial reserves. In 1989 Esso Resources Canada Ltd., Shell Canada Ltd. and Gulf Canada Resources Ltd. applied to the National Energy Board to export 9.2 trillion cubic feet of gas over 20 years starting in 1996. Employment opportunities could increase from hydrocarbon development, and new technologies in areas such as aquaculture promise renewed opportunities in renewable resources. Advances in agriculture suggest that market gardens, and beef, pork and egg operations could supply local markets in the larger communities.

Given the above, it is becoming increasingly apparent that in the coming years economic development in both territories may place more emphasis on the renewable resource sectors of the economy, including tourist and park facilities.

12.8.3 Wages, Salaries and Allowances

The average weekly earnings for all employees has, for some time, been higher in Yukon and the N.W.T. than in Canada as a whole, as indicated in Table 12-5. These figures, however, give a misleading impression of earnings in both territories. Wage rates, salary levels and allowances often reflect higher costs of living resulting from increased transportation and marketing costs involved in making consumer goods available to northerners. As well, many northern firms do not operate at scales of production that result in lower unit costs. It must also be remembered that both the N.W.T. and Yukon have unemployment rates far higher than the national average.

12.8.4 Labour Legislation

All employees under federal jurisdiction are protected by the *Canada Labour Code*, the *Canadian Human Rights Act*, the *Public Service Act*, the *Public Service Staff Relations Act* and the *Government Employees Compensation Act*. In addition, territorial acts apply, which correspond to provincial labour legislation elsewhere in Canada. Other acts with some labour content are in the *Revised Acts of the Northwest Territories* and *Revised Acts of Yukon*.

12.8.4.1 Yukon

In Yukon the *Employment Standards Act* affects about 60 per cent of employees. It covers all employers and employees in Yukon except those covered by the *Canada Labour Code*, teachers and employees of Crown corporations and federal and territorial governments. The *Employment Standards Act* regulates hours of work, overtime, rest, holiday pay, minimum wages, sick leave, maternity leave and payment procedures upon termination of work. The *Occupational Health and Safety Act* issues regulations on specific standards for working conditions, exposure to chemicals, levels of lighting, ventilation, noise, safety and protective equipment, etc. The *Act* also requires that a safety program be established and maintained where 20 or more employees are regularly employed and the work is considered hazardous. The *Yukon Human Rights Act*, which applies to all employers and employees under the jurisdiction of the *Employment Standards Act*, prohibits discrimination in areas including national, ethnic or linguistic background; ancestry; religion or creed; age; pregnancy; marital status; criminal charges; sexual orientation; and political belief. The Yukon Human Rights Commission will investigate complaints

and will represent the complainant in cases before a Board of Adjudication. This could involve, for example, matters of sexual harassment, equal pay for similar work and the equitable distribution of women, men and minority groups in the work force. The *Workers' Compensation Act* gives workers and their dependants financial protection, medical benefits and rehabilitation services in case of injury or death during or resulting from employment.

12.8.4.2 Northwest Territories

The *Labour Standards Act* covers minimum conditions of employment in the N.W.T. Topics covered include hours of work and overtime, minimum wages, vacations and vacation pay, general holidays, maternity leave, notices of termination of employment, and payment of wages. The *Wages Recovery Act* provides a court procedure to adjudicate disputes over wages and improper dismissals. This *Act* is most useful to employees not covered by the *Labour Standards Act*. The *Employment Agencies Act* governs licensing of employment agencies in the N.W.T. The *Mining Safety Act* establishes criteria to ensure safe working conditions for mining operations in the N.W.T. Regulations made under the *Safety Act* ensure safety protection for workers in the N.W.T. The *Workers' Compensation Act* establishes a scheme to provide benefits, including medical aid, to workers who suffer accidents and/or industrial diseases resulting from their employment.

12.9 Consumer Goods and Services

Because few consumer goods are produced within the territories, these goods must be imported. The remoteness of northern settlements from the sources of supply ensures that living costs in the North will be greater than in southern Canadian communities by an amount approximately equal to the additional transportation and inventory costs.

However, during the 1980s prices in Yellowknife and Whitehorse did not increase as fast as in the rest of Canada. In January 1990, the national Consumer Price Index (CPI) for all items excluding shelter was 142.8 (March 1982 = 100). In Yellowknife, the CPI for all items excluding shelter was 141.1 and in Whitehorse, 137.3.*

Based on indices comparing major price components in Yellowknife and Whitehorse with Edmonton and Vancouver, Whitehorse prices were about 12 per cent higher than Vancouver in 1989, and Yellowknife prices were about 33 per cent higher than Edmonton in 1988. Prices are higher in Whitehorse and Yellowknife because of housing, transportation and food costs. Table 12-6 lists the spatial price indices for Yellowknife and Whitehorse between 1983 and 1989. The differential is even larger for smaller, more remote northern settlements. These higher costs may have less impact on some persons — primarily native — who follow the traditional hunting and trapping way of life. It is therefore difficult to compare the costs of living in northern and southern communities.

12.9.1 Food

Food prices are higher in northern Canada than in southern Canada. The numerous small, often isolated, communities lack the retailing structure familiar to southern Canadians. Only larger centres have supermarkets, specialty shops and convenience stores. Prices are high mainly because of freight and inventory costs. In 1990 Agriculture Canada determined that the average weekly cost of a nutritious diet for a family of four was $155.98 in Yellowknife, $159.30 in Whitehorse, $118.32 for Vancouver, $121.38 for Edmonton, and $125.51 for all Canada.

Table 12-7 contains food price indices that show the difference between Yellowknife and smaller N.W.T. communities, and indices for specific food groups that show the difference between Yukon communities and Whitehorse.

12.9.2 Clothing, Furniture — Household Goods and Services

Due to the small and widely distributed population in the North, no retail establishment, even in Whitehorse, Yellowknife or the other relatively large population centres, can afford to carry a very wide selection of durable consumer goods such as furniture and appliances. In major northern centres where there is a high level of disposable income, there is much the same range of articles of everyday purchase as in southern Canadian communities of comparable size.

In southern Canada a major shopping centre is usually accessible to rural households or small communities. This is not normally the case in Yukon and the N.W.T. where hundreds of kilometres can separate the smaller from larger places. Often roads are either non-existent or primitive, making travel expensive. Goods ordered during trips outside or by mail must be shipped by either truck (where roads exist), air freight or parcel post. The cost of shipping is then reflected in a higher retail price. Canada Post Corporation provides some relief in the high costs that transportation adds to the final price of food and consumer goods. See Section 6.3.1.4.

12.9.3 Petroleum Products

Stittco Utilities N.W.T. Ltd. supplies piped propane services in Hay River, N.W.T. The propane is brought by tanker truck from locations in Alberta. There are other distributors of tanked propane services in Yellowknife, Hay River, Fort Smith and Inuvik.

Most N.W.T. communities are not serviced by private sector distributors of petroleum products. In these communities the GNWT, through its Petroleum Products Division, acquires, transports, stores and distributes

* *Because of the nature and relatively small size of the housing market in Whitehorse and Yellowknife, Statistics Canada has been unable to construct reliable price indices for new houses. Price comparisons between Yellowknife and Whitehorse and the rest of the country are valid only when shelter costs are excluded.*

petroleum products. Retail prices are developed based on full cost, less the cost of financing inventories and amortizing capital assets. In this way consumers receive a small indirect subsidy.

The costs of gasoline and fuel oil in Yukon and the N.W.T. are among the highest in the country. For a comparison with other Canadian cities, see Table 12-8.

12.9.3.1 Hot Water and Steam

District heat as hot water is available from the Iqaluit and Inuvik electrical generating plants.

12.10 Utilities

12.10.1 General

The utilities taken for granted in southern Canada are not universally available in the North. Although almost every community is supplied with electrical power, many do not have running water and sewage disposal systems.

Where they are available, the cost of providing these utility services is high, reflecting the northern environment and conditions.

12.10.2 Electricity

All cities, towns, villages, hamlets and recognized unincorporated communities in the North have electrical service. Three settlements — Bay Chimo, Bathurst Inlet and Colville Lake — are without electricity as is the Salt Plains Indian reserve. In Yukon several recreational areas do not have electricity.

In most northern communities electrical power is generated by diesel plants, although in some, electrical power is generated hydroelectrically. The Northwest Territories Power Corporation (NWTPC) owns 44 diesel generators, as well as 3 hydroelectric facilities on the Snare River, which empties into the North Arm of Great Slave Lake. The GNWT owns and operates the diesel generator at Sanikiluaq. Nerco, the large mining, smelting and refining corporation, owns a hydroelectric facility on Bluefish Lake, east of Yellowknife, which supplies power to its Nerco Con Mine near Yellowknife. Northland Utilities Inc., a subsidiary of the Alberta Power Corporation, owns six diesel generators at Kakisa, Trout Lake, Snare Lake, Hay River, Fort Providence and Dory Point. (See Table 12-10).

In Yukon, 9 communities have diesel-generated power and 13 others have hydroelectric power, with diesel-generated power at peak times as needed. Power is supplied by the Yukon Energy Corporation, a subsidiary of the Yukon government's Yukon Development Corporation, to the Yukon Electrical Company Ltd., a subsidiary of Alberta-based Canadian Utilities. Yukon Electrical Company Ltd. both owns and operates some electrical generating facilities, and only operates others owned by Yukon Energy Corporation. The company owns and operates two hydroelectric facilities near Whitehorse, and diesel generators at Beaver Creek, Destruction Bay, Old Crow, Pelly Crossing, Stewart Crossing and Watson Lake. It operates diesel generating facilities at Dawson City, Elsa, Faro and Mayo, and three hydroelectric facilities and one diesel electric plant at Whitehorse, Mayo and Aishihik. (See Table 7-1).

In the N.W.T., the NWTPC carries out almost all retail distribution of electricity. It also wholesales power to Inter City Gas (ICG) Northern Utilities Ltd. (owned by Westcoast Energy Inc. Vancouver, BC), Northland Utilities Ltd, Baker Lake, Coral Harbour, Iqaluit and Resolute. NWTPC supplies Northland Utilities Inc. with some power from the hydroelectric generating facility at Taltson River, just east of the Slave River.

For more information on electrical rates and services, contact:

For N.W.T.:

Northwest Territories Power Corporation
3 Capital Road
Hay River, N.W.T.
X0E 0R0

For Hay River, Enterprise, Kakisa, Dory Point, Snare Lake and Trout Lake:

Northland Utilities (N.W.T.) Ltd
77B Woodland Drive
Hay River, N.W.T.
X0E 0R0

For Yellowknife:

ICG Northern Utilities Ltd.
481 Range Road
Yellowknife, N.W.T.
X1A 2P9

For Yukon:

Yukon Electrical Company Ltd.
P.O. Box 4190
Whitehorse, YT
Y1A 3T4

12.10.3 Other Utilities

Not all communities in the North have modern water and sewer systems like those in larger urban centres in southern Canada. Most N.W.T. communities have trucks that deliver water regularly to individual residences. The water may be treated in the truck or at the residence, but not all places treat the water. Sewage is usually treated by a tank truck pumping out holding tanks and another truck collecting bagged sewage and garbage. About 16 communities have water and sewage piped to and from residences. In some cases, such as Inuvik and Rankin Inlet, these pipes are encased in an above-ground *utilidor* to prevent the water and sewage from freezing. About six N.W.T. communities use these utilidor systems, sometimes supplemented with trucked water delivery and sewage pump-out. The utilidor system provides the convenience of a typical piped system even in a permafrost region where burying pipes is not possible. Nine communities have a buried-pipe water delivery system.

In Yukon, Dawson City, Faro, Haines Junction, Mayo, Watson Lake and Whitehorse have piped water and sewage collection systems. Most other communities

have individual or community wells and tank trucks sometimes deliver water. Communities without sewer systems often use septic tanks and outdoor privies.

Removal of garbage is easily added to the collection of sewage when the latter is bagged. If a more sophisticated sewerage system is in place the addition of garbage collection appears to be a relatively minor item, so that this service is quite generally available.

District heat is provided at a few places in the form of waste heat that is a by-product of the generation of electricity from diesel plants. At present, the Yukon Energy Corporation operates a major heat recovery system at Dawson City in Yukon and the Northwest Territories Power Corporation does so at Cambridge Bay, Lac la Martre, Coppermine, Fort Simpson, Pelly Bay, Igloolik and Rankin Inlet.

12.10.4 Fuel Supplies

There is local production of refined petroleum products at the refinery at Norman Wells, and this provides for the needs of communities north of Norman Wells and communities located in the central Arctic coast. The remainder comes by truck to Hay River for barge shipment or over the Dempster Highway to the Delta area.

The Pointed Mountain Gas Field in N.W.T. produces gas for transportation via pipeline to a treatment plant at Fort Nelson, B.C., with only a very small quantity being used for the generation of electricity for on-site field operations. See Section 9.2.3 and Figure 9-1.

A small-diameter pipeline terminating at Whitehorse delivers a major portion of the petroleum supplies to Yukon from tidewater at Skagway, Alaska. These supplies are shipped to Skagway by sea. See Section 9.2.2 and Figure 9-1. Other supply routes are by tanker truck along the Alaska Highway from Alberta and by tanker truck from the Alaskan seaport of Haines.

Most of the eastern Arctic receives its fuel and diesel oil by tanker from Montreal or Churchill. Some remote points are served by air.

12.10.5 Subsidies

There are two Yukon energy subsidy programs. One subsidy program equalizes power rates for residential consumers outside Whitehorse to Whitehorse rates for the first 1,000 kWh hours per month and for a business to 2,000 kWh per month. The second subsidy program is for isolated commercial business (such as highway lodges) that have to generate their own power. The program offers a subsidy equivalent to getting the first 2,000 kWh of power at Whitehorse rates.

In the N.W.T. there are three subsidy programs. Housing associations pay the difference after a resident has paid the first three cents per kWh. Other residents living in communities outside Yellowknife receive a subsidy equal to the first 700 kWh per month at the Yellowknife rate. (This is reflected in their monthly bill.) Commercial users receive the difference between the power rate they pay each month and the first 1,000 kWh per month at the Yellowknife rate. (A commercial user must submit receipts of paid power bills to the GNWT Department of Finance in order to receive the subsidy.)

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Table 12-1

Number of Establishments by Major Industry Group, December 1988

Group	N.W.T.	Yukon
Agriculture	9	16
Fishing, Trapping	15	10
Logging, Forestry	11	12
Mining, Quarrying and Oil Wells	34	137
Manufacturing	43	38
Construction	283	260
Transportation, Storage	147	108
Communication and Other Utility	32	16
Wholesale	83	68
Retail	241	209
Finance & Insurance	35	36
Real Estate & Insurance Agent	100	40
Business Service	141	105
Government Services	152	82
Educational Services	44	17
Health & Social Services	104	78
Accommodation, Food and Beverage Services	152	174
Other Services	480	271
Total	2,114	1,677

Source: Statistics Canada, Business Register Division.

Note: The data are organized according to the 1980 Standard Industrial Classification codes. The unit of measurement is the statistical establishment, which is the smallest operating entity capable of reporting all elements of basic industrial statistics. Not included are establishments that are owner-operated with no paid employees. For a description of the Standard Industrial Classification and the types of establishments included in the industrial groups see Statistics Canada, *Canadian Standard Industrial Classification for Companies and Enterprises 1980* (Catalogue 12-570 E/F).

Table 12-2

Distribution of number of establishments by number of employees, December 1988

No. of employees	No. of establishments	
	Yukon	N.W.T.
1-4	794	946
5-9	232	336
10-19	135	211
20-49	82	172
50-99	29	41
100-199	7	20
200-499	6	8
500-999	—	2
1,000-1,499	—	1
Businesses that had employees and currently do not *or* businesses that expect to have employees in the next 12 months.	321	280
Number of businesses that supplied incomplete information*	71	89
TOTAL	1,677	2,106

Source: Statistics Canada, Business Register Division.

Note: Data include only establishments with employees. Owner-operated businesses, with no paid employees, are excluded.

Employment in government departments is included.

* 90 per cent of businesses in this category had between 1 and 19 employees.

Table 12-3

Population and Labour Force, 1986-1988

Territory	1986	1987	1988
Yukon*			
Population over 15 years	19,669	20,422	21,912
Labour Force	12,269	13,262	14,352
Employed	10,784	11,569	12,628
Unemployed	1,485	1,693	1,724
Unemployment rate	12%	13%	12%
N.W.T.			
Population over 15 years	34,930**	N/A	34,650**
Labour Force	24,370**	N/A	24,250**
Employed	20,950**	N/A	20,328**
Unemployed	3,420**	N/A	3,922**
Unemployment rate	14%**	N/A	16%**

Source: * Government of Yukon. *Statistical Review*. Fourth Quarter, 1988. Government of the Northwest Territories. *Statistical Quarterly*, March 1989.

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The *Survey* is based on questionnaires completed between mid-January and mid-March 1989.

Table 12-4

Annual Averages of Employees by Industry Group

Industry Group*	Yukon			N.W.T.		
	1986	1987	1988	1986	1987	1988
	(thousands)			(thousands)		
Goods-producing industries	0.9	1.2	1.6	3.7	3.7	3.9
Transportation, communication and other utilities	1.6	1.5	1.6	1.9	1.7	1.7
Trade	1.2	1.4	1.5	2.1	2.1	2.3
Community, business and personal service industries	2.5	3.0	3.0	5.2	5.3	5.6
Public administration	2.3	2.0	2.2	4.7	5.0	5.0
Finance, insurance and real estate	0.3	0.3	0.4	0.6	0.9	0.9
Total:	8.8	9.4	10.1	18.2	18.7	19.4

Source: Statistics Canada. *Employment, Earnings and Hours* (Catalogue No. 72-002)

Note: Employment in agriculture, fishing, trapping, military services, religious organizations and household services is not included. Figures from territorial jurisdictions may vary from Statistics Canada figures.

* *Goods-producing industries* includes employment in forestry, mines, quarries, oil wells, manufacturing and construction activities.
Trade includes employment in wholesale and retail activities. *Transportation, communication and other utilities* includes employment in transportation, storage, communication, electrical power, gas and water utilities.
Community businesses and personal service industries includes, employment in education (elementary, secondary and post-secondary) services; services to business management; employment agencies; security and investigation services; laundry and cleaning establishment; hotels; restaurants; engineering and scientific services, and offices of dentists, physicians and lawyers.
Public administration includes employment in federal, provincial and local administrations.
Finance, insurance and real estate includes employment in banks, credit agencies, investment companies, real estate operations and insurance agencies.

Table 12-5

Average Weekly Earnings by Industry Group

Industry Group	Canada		Yukon		N.W.T.	
	1987	1988	1987	1988	1987	1988
	(dollars)		(dollars)		(dollars)	
Goods-producing industries	537.22	562.89	678.13	706.10	803.54	830.75
Transportation, communication and other utilities	573.03	596.81	578.03	662.70	654.77	693.98
Trade	325.24	338.47	410.09	406.23	318.76	325.35
Community, business and personal service industries	371.03	390.51	384.42	410.41	535.80	509.25
Public administration	568.00	593.96	620.15	663.31	661.72	690.46
Finance, insurance and real estate	486.55	510.77	493.32	603.36	545.81	597.18

Source: Statistics Canada. *Employment, Earnings and Hours* (Catalogue No. 72-002).

Note: Averages are weighted.

Weekly earnings are annual averages for full-time, part-time, casual and temporary employees. Also included are working owners, directors, partners and other officers of incorporated businesses.

Not included are employees in agriculture, fishing, trapping, military services, religious organizations and household services.

Table 12-6

Spatial Price Indices — Yellowknife and Whitehorse

Year		All Items	Food	Housing	Clothing	Transportation	Health & Personal Care	Recreation Reading & Education	Tobacco & Alcohol
1989	Whitehorse (Edmonton = 100)	122.9	128.3	137.7	111.8	109.4	121.2	107.7	117.7
	Whitehorse (Vancouver = 100)	112.3	126.4	114.3	105.9	100.3	108.2	113.6	104.1
1988	Yellowknife (Edmonton = 100)	132.5	123.1	161.1	117.6	123.7	125.7	119.8	107.6
1987	Yellowknife (Edmonton = 100)	133.1	122.7	163.3	119.7	121.3	126.0	122.6	107.1
1986	Yellowknife (Edmonton = 100)	136.3	128.2	161.4	120.0	126.4	126.8	123.8	120.8
	Whitehorse (Edmonton = 100)	123.7	127.8	125.4	119.0	127.7	122.4	105.6	126.1
	Whitehorse (Vancouver = 100)	110.3	121.5	109.9	106.7	105.0	107.2	106.4	105.3
1985	Yellowknife (Edmonton = 100)	136.3	127.8	165.3	119.5	121.7	125.2	121.3	122.6
	Whitehorse (Edmonton = 100)	121.6	129.6	125.3	116.0	122.7	118.1	105.0	112.1
	Whitehorse (Vancouver = 100)	113.7	124.5	119.4	112.6	103.8	105.7	106.5	99.8
1984	Yellowknife (Edmonton = 100)	135.1	125.9	159.1	120.8	126.5	125.0	121.0	121.6
	Whitehorse (Edmonton = 100)	124.6	131.3	130.8	117.2	120.6	115.2	112.7	123.3
	Whitehorse (Vancouver = 100)	113.1	119.3	117.1	113.7	103.9	116.7	113.5	100.5
1983	Yellowknife (Edmonton = 100)	130.7	125.1	154.4	117.4	119.7	124.4	115.5	124.7
	Whitehorse (Edmonton = 100)	123.6	128.3	129.0	112.6	116.6	106.5	126.3	122.2
	Whitehorse (Vancouver = 100)	118.0	121.4	125.8	110.8	105.3	101.1	127.6	111.8

Note: All indices are as of June. Data for Whitehorse in 1987 and 1988 were not collected. Data for Yellowknife in 1989 are not available.

Sources: Government of Yukon. *Statistical Review*. 1982-1988.

Government of the Northwest Territories. *Statistics Quarterly* 11, no. 1.

Table 12-7

Food Price Indices, Selected Communities

	INDEX*		INDEX*
N.W.T. (Yellowknife = 100)			
Aklavik	132	Fort Smith	90
Arviat	177	Hay River	89
Baker Lake	150	Igloolik	171
Cambridge Bay	152	Inuvik	124
Coppermine	142	Iqaluit	151
Fort Franklin	148	Rae-Edzo	103
Fort Good Hope	154	Rankin Inlet	146
Fort Liard	101	Sachs Harbour	170
Fort Norman	150	Sanikiluaq	164
Fort Resolution	103	Tuktoyaktuk	122

	INDEX**		
	Meat	Dairy/Eggs	Fruit/Veg.
YUKON (Whitehorse = 100)			
Burwash Landing	112.8	109.0	110.1
Carcross	105.8	113.4	141.6
Carmacks	115.8	127.2	111.7
Dawson City	104.3	107.9	115.0
Faro	115.1	105.3	95.6
Haines Junction	108.5	104.3	107.4
Mayo	102.3	118.7	122.5
Old Crow	121.7	162.5	179.6
Ross River	109.7	127.5	107.4
Teslin	93.3	102.5	84.4
Watson Lake	97.9	106.5	86.1

Sources: Government of Yukon. *Statistical Review*, Fourth Quarter, 1987.

Government of the Northwest Territories. *Statistics Quarterly* 11, no. 1.

* October 1987
** Fourth Quarter 1987

Note: Selected communities in the N.W.T. include those with 86 per cent or more of the 162 food items included in the Yellowknife Family Expenditure survey undertaken in 1982 by Statistics Canada and adjusted for price changes to June 1987.

In Yukon, Beaver Creek, Destruction Bay, Pelly Crossing, Elsa and Tagish were not included by the Yukon Bureau of Statistics.

Table 12-8

Average Gasoline and Fuel Oil Prices, 1989

City	Gasoline*	Fuel Oil
	(cents per litre)	
Whitehorse	56.1	38.1
Yellowknife	58.8	33.1
St. John's	59.3	32.2
Halifax	52.4	28.9
Quebec	57.3	32.2
Montreal	58.2	28.7
Ottawa	55.2	31.9
Toronto	53.0	31.6
Winnipeg	52.1	32.6
Regina	54.2	29.6
Edmonton	47.8	**
Calgary	48.1	**
Vancouver	55.0	31.8

Source: Statistics Canada. *Consumer Prices and Price Indexes* (Catalogue 62-010). Quarterly.

* Regular unleaded gasoline at full-service filling stations.

** Edmonton and Calgary use natural gas for home heating.

Table 12-9

Current Electrical Rates, August 1989, Yukon

	Residential Non-Government		Residential Government			Commercial Non-Government		Commercial Government			
Kilowatt Hours	<1,000	>1,000	<300	>300	>500	<2,000	>2,000	<40	<200	<400	>400
Community	(cents/kWh)		(cents/kWh)			(cents/kWh)		(cents/kWh)			
Beaver Creek	7.34	10.29	26.20	23.70	18.30	10.60	23.24	20.00	23.00		18.30
Carcross	7.34	8.05	14.50	10.40	9.40	10.60	8.27	15.70	12.40		9.40
Carmacks	7.34	8.05	14.50	10.40	9.40	10.60	8.27	15.70	12.40		9.40
Dawson City	7.34	14.02	15.53	20.99		10.60	21.76	25.11	25.11	25.11	25.11
Destruction Bay	7.34	10.29	26.20	23.70	18.30	10.60	23.24	20.00	23.00		18.30
Elsa	7.34	10.29			10.60	8.27					
Faro	7.34	8.05	7.91	7.91		10.60	8.27	14.87	10.58	8.37	8.05
Haines Junction	7.34	8.05	15.00	14.50	11.20	10.60	8.27	16.50	14.30		11.10
Johnson's Crossing	7.34	8.05	20.25	20.25		10.60	8.27	22.52	22.52	22.52	22.52
Keno	7.34	8.05	8.90	8.50	7.90	10.60	8.27	12.50	10.00		8.10
Mayo	7.34	8.05	7.81	5.65		10.60	8.27	14.79	10.14	7.81	5.86
Marsh Lake	7.34	8.05	14.50	10.40	9.40	10.60	8.27	15.70	12.40		9.40
Old Crow	7.34	41.81	38.40	38.40	38.40	10.60	40.31	48.80	48.80		48.80
Pelly Crossing	7.34	10.29	26.20	23.70	18.30	10.60	23.24	20.00	23.00		18.30
Ross River	7.34	8.05	22.20	20.00	15.50	10.60	8.27	22.20	19.60		15.50
Stewart Crossing	7.34	10.29	26.20	23.70	18.30	10.60	23.24	20.00	23.00		18.30
Swift River	7.34	10.29	26.20	23.70	18.30	10.60	23.24	20.00	23.00		18.30
Tagish	7.34	8.05	14.50	10.40	9.40	10.60	8.27	15.70	12.40		9.40
Teslin	7.34	8.05	7.50	7.00	6.60	10.60	8.27	8.90	7.80		6.60
Upper Liard	7.34	10.29	26.20	23.70	18.30	10.60	23.24	20.00	23.00		18.30
Watson Lake	7.34	14.02	18.10	18.40	14.80	10.60	21.76	22.30	17.90		14.70
Whitehorse	7.34	8.05	7.50	7.00	6.60	10.60	8.27	8.90	7.80		6.60

Source: Yukon Electric Company Ltd. Rates have been effective since April 1989.

Note: All locations and services have minimum charges, which are: residential non-government, $8.00/month; residential government, $5.57 and $5.86/month; commercial non-government, $8.00/month; and, commercial government, $23.37 and $7.80/month.

* The rates for fewer than 1,000 kWh (residential non-government) and fewer than 2,000 kWh (commercial non-government) reflect current subsidies in section 12.10.5. Subsidies reflect unexpected profits that are returned to the consumer.

Table 12-10

Electrical Rates, February 1, 1990, N.W.T.

Community	Residential Service[1] per kWh (cents/kWh)	Commercial Service[1] per kWh (cents/kWh)
Yellowknife	0.0910	0.0801

Kilowatt Hours	Residential Service[2] All kWh	Commercial Service[2]	
		<200	>200
Community	(cents/kWh)	(cents/kWh)	
Dory Point	20.5	25.1	19.5
Enterprise	11.1	13.2	9.2
Fort Providence	20.5	25.1	19.5
Hay River	11.1	13.2	9.2
Kakisa	20.5	25.1	19.5
Snare Lakes	53.2	58.0	45.0
Trout Lake	43.1	48.6	45.0

	Residential Service[3]				Commercial Service[3]			
	Non-government		Government		Non-government		Government	
Kilowatt Hours	<300	>300	<300	>300	per kWh		per kWh	
	Monthly Energy Charge				Monthly Energy Charge			
Community	(cents/kWh)				(cents/kWh)			
Aklavik	18.18	32.91	40.10	40.10	36.33		40.10	
Arctic Bay	22.44	36.90	49.83	49.83	35.53		49.53	
Arctic Red River	30.60	50.29	73.36	73.36	48.91		73.36	
Arviat	23.85	40.16	44.80	44.80	35.41		44.80	
Baker Lake	22.55	40.67	44.33	44.33	34.37		44.33	
Broughton Island	30.85	50.80	64.44	64.44	53.36		64.44	
Cambridge Bay	20.59	36.89	40.70	40.70	38.50		40.70	
Cape Dorset	29.27	47.39	50.53	50.53	41.68		50.53	
Chesterfield Inlet	26.06	44.06	65.48	65.48	53.86		65.48	
Clyde River	15.20	28.11	43.30	43.30	29.02		43.90	
Coppermine	19.05	36.52	42.21	42.21	34.25		42.21	
Coral Harbour	20.33	34.67	41.14	41.14	37.76		42.07	
Detah*	10.13	6.81	—	—	11.02		8.22	
Fort Franklin	17.13	32.12	42.51	42.51	38.81		40.05	
Fort Good Hope	19.44	35.98	50.45	50.45	40.04		44.86	
Fort Liard	21.06	37.36	59.77	59.77	39.91		59.77	
Fort McPherson	16.64	30.47	38.87	38.87	29.87		38.87	
Fort Norman	22.19	37.05	42.49	42.49	35.15		42.50	
Fort Resolution	7.26	8.04	11.67	11.67	13.69		15.47	
Fort Simpson	16.96	23.49	28.70	28.70	33.02		38.85	
Fort Smith	10.14	7.73	—	—	16.33	first 100 kWh	16.33	first 100 kWh
					11.14	next 400 kWh	11.14	next 400 kWh
					6.83	over 400 kWh	6.83	over 400 kWh
Gjoa Haven	20.19	35.07	51.84	51.84	40.78		51.84	
Grise Fiord	20.79	35.13	49.06	49.06	33.65		52.39	

Table 12-10 *(Cont'd)*

Electrical Rates, February 1, 1990, N.W.T.

	Residential Service[3]				Commercial Service[3]			
	Non-government		Government		Non-government		Government	
Kilowatt Hours	<300	>300	<300	>300	per kWh		per kWh	
	Monthly Energy Charge				Monthly Energy Charge			
Community	(cents/kWh)				(cents/kWh)			
Hall Beach	16.40	33.23	56.96	56.96	36.95		56.96	
Holman	23.64	40.32	64.72	64.72	43.33		64.72	
Igloolik	15.76	32.19	38.21	38.21	35.38		38.21	
Inuvik	18.48	24.35	25.69	25.69	24.61		25.69	
Iqaluit	23.17	31.65	33.71	33.71	31.02		34.16	
Jean Marie River	24.88	44.05	69.73	69.73	45.03		73.36	
Lac la Martre	20.95	37.62	71.18	71.18	41.65		70.77	
Lake Harbour	32.01	51.95	63.08	63.08	44.82		63.08	
Nahanni Butte	29.25	47.23	73.36	73.36	46.84		73.36	
Norman Wells	15.77	24.49	25.31	25.31	25.77		25.59	
Pangnirtung	26.65	42.02	49.07	49.07	42.01		44.25	
Paulatuk	25.16	44.83	73.36	73.36	55.02		73.36	
Pelly Bay	37.46	60.13	73.36	73.36	60.72		73.36	
Pine Point	5.45	4.62	—	—	11.02	first 100 kWh	11.02	first 100 kWh
					6.16	next 400 kWh	6.16	next 400 kWh
					4.75	over 400 kWh	4.75	over 400 kWh
Pond Inlet	19.72	31.96	38.14	38.14	30.70		38.14	
Rae Lakes	23.28	40.09	68.83	68.83	36.27		68.83	
Rae-Edzo	5.91	6.82	12.73	11.83	11.81		16.52	
Rankin Inlet	21.16	37.47	41.25	41.25	38.92		41.25	
Repulse Bay	18.80	31.04	41.88	41.88	32.92		41.88	
Resolute	22.80	34.55	34.69	34.69	36.02		34.91	
Sachs Harbour	22.03	39.10	54.53	54.53	43.88		43.88	
Snowdrift	21.06	31.12	48.47	48.47	30.69		47.95	
Spence Bay	23.19	34.78	49.50	49.50	35.78		50.65	
Tuktoyaktuk	19.36	30.16	36.88	36.88	31.72		36.88	
Whale Cove	23.15	39.94	66.56	66.56	43.95		68.09	
Wrigley	22.28	34.02	51.24	51.24	36.30		32.87	

Sources: 1. Inter City Gas (ICG) Northern Utilities Ltd.
2. Northland Utilities Limited
3. Northwest Territories Power Corporation

* Figures are for <75 kWh and >75 kWh for residential consumers. For commercial consumers <250 kWh and >250 kWh.

Notes: 1. The monthly minimum charge for residential consumers is $10.00, and for commercial consumers $20.00. The City of Yellowknife has a surcharge of 2.4 per cent on the monthly statement.
2. There is a fixed minimum charge of $12.00/month for residential service. The minimum monthly bill for commercial service is the demand charge of $3.00 per Kw.
3. Residential consumers pay a service charge of $5.55/month. Commercial consumers pay a service charge of $22.20/month if demand is less than or equal to 5 kWh or kilovolts-ampere and $4.40/month per kW or if demand is more than 5 kW or kilovolts-ampere.

13.0 Tourism and Recreation

13.1 General

Tourism is an important and growing factor in the economy of the North. There is easy access to most areas by air. Road transportation extends beyond the Arctic Circle with the Dempster Highway to Inuvik. In addition, visitors can travel by ferry or cruise ship along the Inside Passage of the Pacific coast, then drive the Klondike Highway from Skagway, Alaska to Whitehorse.

Spectacular scenery, abundant wildlife and the feeling of being far away from the usual surroundings are some of the attractions which bring an increasing number of visitors to both Yukon and the Northwest Territories.

13.1.1 Yukon

The Yukon Department of Tourism is responsible for tourism marketing and development, and heritage resources. The objectives of the Tourism Marketing Branch are the development of visitor traffic to Yukon by increasing:

a) the recognition by potential tourists that Yukon is a desirable destination;
b) the number of visitors;
c) the average length of stay of visitors;
d) the length of the tourism season; and
e) the development of outdoor and winter tourism.

In 1988, about 190,000 people visited the Yukon (see table 13-1). Marketing activities targeted western states and provinces. Secondary markets included German-speaking Europe, Australia and Japan. The Yukon vacation guide *Yukon — The Magic and the Mystery* was sent in response to more than 85,000 requests for Yukon travel information. Another 100,000 guides were distributed through automobile associations, travel agents, tour operators, Tourism Canada, hotels and travel information centres in and outside Yukon. A total of 12,000 Yukon tour planners were distributed to tour operators, travel agents and airlines.

The Tourism Development Branch coordinates with industry on developing tourism strategies and development of tourism attractions and related supplies and services. After consulting all sectors of the tourism industry, a Yukon Tourism Action Plan was released in 1988, charting the industry's course for the next decade.

The Yukon Tourism Action Plan's objectives are:

- generating optimal visitor expenditures in the Yukon;
- creating an economy that will stimulate private sector investment in the tourism industry;
- creating the maximum number of long-term career-oriented jobs for Yukoners;
- developing and diversifying new tourism products;
- implementing relevant training programs for people in the tourism industry;
- integrating Indian tourism development within the territory; and
- targeting Yukon products at prospective visitors who will spend the most money in the Yukon either through the amount of money they would spend each day or because they are part of a large or growing market.

13.1.1.1 Arts and Crafts

In Yukon, between 500 and 600 full- and part-time workers produce a variety of arts and crafts, including moose hide moccasins, mukluks, mitts, jackets, bone and horn sculptures, birch-crafted snowshoes, gold nugget jewellery and landscape paintings. Making moose hide products employs the most workers, but more arts and crafts workers are also painting. Currently paintings make up about 10 per cent of the total value of arts and crafts retail sales which in 1988 were about $3.0 million.

13.1.2 N.W.T.

In December 1987, TravelArctic — the territorial government agency responsible for tourism development -launched a major new marketing initiative in the world's largest travel market, the United States. The campaign, called "The Northwest Territories, Within Reach, Yet Beyond Belief" was the result of much consultation and strategy development. This campaign has contributed to a good image and awareness of the N.W.T.

Tourism literature for the public, including the annual Explorers' Guide, Explorers' Map and Fishing Guide, is available from the Department of Economic Development and Tourism.

Usually, TravelArctic participates in several co-operative tourism programs. These programs deliver the TravelArctic message to the tourism marketplace cost-efficiently; costs are divided between participating co-op partners.

Co-operative marketing projects for 1988-89 were with partners including Canadian Airlines, Air Canada, First Air, Angling Adventures Magazine and Tourism Canada. Levels of government are also cooperating more to bring more travellers to the N.W.T. In 1988, about 60,000 people visited the N.W.T. (See Table 13-1).

A wide variety of recreational activities, organized and unorganized, is available to residents in Yukon and the N.W.T. Many communities have facilities such as arenas and playgrounds or swimming pools. Outdoor sports and recreation are natural favourites in both territories during winter and summer. The N.W.T. Public Library System offers services and community activities such as clubs, seasonal festivals, movies and dances.

13.1.2.1 Arts and Crafts

Arts and crafts production is an important aspect of tourism and recreation. This cottage industry provides income for many Natives throughout the North.

In the N.W.T. about 3,000 full- and part-time workers produce leather goods, prints, drawings, tapestries, dolls and sculptures. Soapstone sculptures by Inuit artists and crafts people represent two-thirds of the total retail value of arts and crafts. In 1985, retail sales were about $15.5 million, and by 1988 retail sales reached $25 million. The federal and the N.W.T. governments jointly support the industry through a Subsidiary Agreement on Arts and Crafts under the Economic Development Agreement. The Agreement funds materials supply, promotional and marketing strategies, artist and artisan development and management improvement.

13.2 Parks

13.2.1 General

Yukon and the N.W.T. have campgrounds as well as territorial parks, national parks and heritage rivers. Generally, campgrounds are located on or close to highways, and provide picnic and camp sites. National parks and national park reserves are usually larger and often less accessible. Yukon also has two national historic sites that commemorate the places and events of the Gold Rush era. There are five heritage rivers in Canada's North. Figure 13-1 shows the location of these parks, historic sites and heritage rivers.

Yukon has one national park, Northern Yukon National Park, and one national park reserve, Kluane National Park Reserve. The N.W.T. has three national park reserves — Auyuittuq, Nahanni and Ellesmere Island — and part of one national park, Wood Buffalo. The park lands and boundaries of reserves may change after a native land claim is settled.

Yukon national historic sites include Klondike National Historic Sites in and near Dawson City and S.S. Klondike National Historic Site in Whitehorse. In the N.W.T., Historic Sites and Monuments Board of Canada plaques commemorate about 20 persons, places and events.

The Canadian Heritage Rivers System includes major parts of two northern rivers in two national park reserves. These rivers are the Alsek River in Kluane National Park Reserve, Yukon, and the South Nahanni River in Nahanni National Park Reserve, N.W.T. The Kazan River and the Thelon River in the Keewatin region of the N.W.T. and The Thirty Mile section, Yukon River are also part of the Canadian Heritage Rivers System.

Visitor Information Centres in Yukon and the N.W.T. are conveniently located to provide information on parks and campgrounds. (See Section 13.3.1.)

Information on national parks is available from:

Kluane and Northern Yukon:
Superintendent
Kluane National Park Reserve
Haines Junction, Yukon
Y0B 1L0
Tel: (403) 634-2251

Nahanni, Wood Buffalo, Auyuittuq and Ellesmere Island:
Director General
Prairie and Northern Region
Canadian Parks Service
402 — 457 Main Street
Winnipeg, Manitoba
R3C 3E8
Tel: (204) 983-2110

For information on national historic sites in Dawson City contact:
Superintendent
Klondike National Historic Sites
Canadian Parks Service
P.O. Box 390
Dawson City, Yukon
Y0B 1G0
Tel: (403) 993-5462

For S.S. Klondike National Historic Site contact:
Superintendent
Yukon National Historic Sites
Canadian Parks Service
Room 119
204 Range Road
Whitehorse, Yukon
X1A 3V1
Tel: (403) 668-2116

For information on northern Canadian Heritage Rivers contact:

for Alsek River:
Superintendent
Kluane National Park Reserve
Haines Junction, Yukon
Y0B 1L0
Tel: (403) 634-2251

for South Nahanni River:
Superintendent
Nahanni National Park Reserve
P.O. Box 300
Fort Simpson, N.W.T.
X0E 0N0
Tel: (403) 695-3151

13.2.2 Kluane National Park Reserve

Kluane National Park Reserve is in the southwest corner of Yukon, bordering Alaska and British Columbia. It is accessible by road from Whitehorse or Haines, Alaska. Park headquarters is in Haines Junction, Yukon.

The park is mountainous and about half its area is covered by snow and icefields year-round. Canada's highest mountain, Mount Logan (5,950 m), is in the park.

Wildlife is abundant and includes grizzly and black bears, moose, Dall's sheep, mountain goats, occasional caribou, wolf, coyote, fox, wolverine, arctic ground squirrel, lynx, beaver, otter, muskrat, mink, marmot and snowshoe hare. Birds, too, are numerous; over 170 species have been reported, including several that are rare elsewhere.

Recreational activities include hiking (day trip or overnight), boating on Kathleen Lake, kayaking and mountain climbing. Visitors are advised to contact a park warden for information before taking a day trip and must register for any overnight trips or climbing expeditions.

13.2.3 Northern Yukon National Park

Northern Yukon National Park, established under the Inuvialuit claim settlement in 1984, is in the northwest corner of the Yukon, about 950 km north of Whitehorse. The regional settlements of Inuvik and Aklavik are 200 km to the southeast, and Old Crow is 200 km south. The park can be accessed by air from these regional settlements, or by sea from settlements along the Mackenzie River delta by following the Beaufort coast. The British Mountains dominate the park, rising more than 1,800 m. The Malcolm, Firth and Babbage rivers carve their way across the park to the Beaufort Sea.

The park is an exceptional habitat for wildlife, including barren ground caribou, grizzly bear, Dall's sheep and arctic fox. The Porcupine caribou herd, one of the world's largest at about 180,000 animals, represents one of the park's most spectacular wildlife features. Birds include golden eagle, peregrine falcon, gyrfalcon and rough-legged hawk. The park has important waterfowl nesting areas along the coastal plain for species such as snow geese and whistling swans.

Recreational activities include wilderness rafting along the Firth River corridor, hiking in the British Mountains, canoeing on the Babbage River and exploring the Beaufort shoreline. Because the park is in a remote area, visitors should contact the Chief Park Warden, and register before visiting the park.

Chief Park Warden
Northern Yukon National Park
P.O. Box 1840
Inuvik, N.W.T.
X0E 0T0
Tel: (403) 979-3248

13.2.4 Nahanni National Park Reserve

Nahanni National Park Reserve is a wilderness area in the watershed of the Nahanni River, a tributary of the Liard which in turn flows into the Mackenzie River near Fort Simpson, N.W.T., 145 km by air east of the southeast park boundary.

The reserve, which was established in 1974, is roughly 320 km in length, reaching up the Nahanni River from the Splits, a wide and shallow stretch just upstream from Nahanni Butte where the warden station is located, to the Rabbitkettle Hotsprings at the northwest end of the park. The river is spectacular but treacherous and experience is necessary for safe canoeing. Outfitters in the area provide guided trips which allow the less hardy to see the canyons, Virginia Falls and the hot springs.

There is no road access into the park, but it can be reached by air or water. Information on outfitters is available from the Director, TravelArctic, Yellowknife, N.W.T. X1A 2L9. Telephone: (403) 873-7200.

13.2.5 Wood Buffalo National Park

Wood Buffalo National Park straddles the border between Alberta and the N.W.T. It is 44,980 km^2 in area and is one of the world's largest national parks.

This park was established in 1922 as a haven for Canada's last herd of wood bison. Now interbred with plains bison, the hybrid population is about 4,000. The park is also famous as the summer home and breeding ground of the world's only flock of wild whooping cranes. The current population is about 137 and in 1988 there were 31 breeding pairs.

The park headquarters at Fort Smith, N.W.T., provides access to the campground at Pine Lake and to 50 km of hiking trails and a gravel road system which runs through the northeast section of the park. The Slave River Rapids near Fort Smith is home to North America's only colony of river-nesting white pelicans.

Recreational activities include fishing and hiking to view and photograph the interesting scenery and wildlife. For information concerning the Park, call (403) 872-2349.

13.2.6 Auyuittuq National Park Reserve

Auyuittuq National Park Reserve on Baffin Island, N.W.T., means "the place which does not melt" in Inuktitut, a reference to the Penny Ice Cap, a massive glacier at the heart of the park. The Reserve was created in 1972 to preserve a unique arctic wilderness of perpetual ice, jagged mountain peaks, deep valleys and fiords. There are 24 hours of daylight from May through July and total darkness in midwinter.

Access to the park for hikers and mountain-climbers is by air via Iqaluit to Pangnirtung and from there to the head of the fiord by Inuit freighter canoe, snowmobile or on foot (a distance of 31 km). For further information concerning the Park Reserve, call (819) 473-8828.

13.2.7 Ellesmere Island National Park Reserve

Established in 1988, Canada's most northerly national park reserve protects almost 40,000 km^2 of Arctic heritage. The park is 800 km from the North Pole and about 600 km north of Grise Fiord, one of North America's most northerly permanent settlements.

The landscape of Ellesmere Island National Park Reserve is mostly ice. Hundreds of glaciers are in the area, some up to 40 km long, with icy tongues stretching into valleys and fiords. Mount Barbeau (2,600 m), the highest of the Grant Land Mountains and the highest mountain in eastern North America, towers over massive ice fields that stretch almost continuously to the passes that form the park's east and west boundaries.

South of Mount Barbeau lies Lake Hazen and the Hazen Plateau, a river-dissected upland rising 1,300 m above sea level in parts. Cliffs higher than 900 m overlook Lady Franklin Bay.

Because of its long harsh winters, brief cool summers and very low precipitation, most of the area is a polar desert. It is windswept and arid, with few plants and animals. Despite the severe climate, areas of thermal oasis, such as around Lake Hazen, are moist and warm enough to support vegetation and animal life.

Thermal oases are known for their large population of arctic hare, which often gather in the hundreds. Small herds of musk-ox roam where there is suitable food. Variant species of peary caribou are also found in small groups throughout the region. A few wolves, arctic fox and polar bears are the main predators.

Ellesmere Island is part of the Queen Elizabeth Islands, which has about 30 species of birds.

Recreational activities include hiking, wildlife observation and group touring. Travel to the park is by charter air service out of Resolute, N.W.T. to Lake Hazen and Tanquary Fiord. Outfitters are available in Resolute. Persons planning a park visit should contact the chief park warden in Pangnirtung, Baffin Island. Currently, the Superintendent, Auyuittuq National Park Reserve administers Ellesmere Island National Park Reserve. For information about the park reserve, call (819) 473-8828.

13.2.8 Klondike National Historic Sites

The Klondike National Historic Sites include Dawson City, the Gold Fields and Bear Creek, all in and around Dawson City, Yukon. Dawson City has about 14 nationally significant structures, including the Robert Service Cabin, Redfeather Saloon and the Governor's Residence. Also, gold mining resources are at Bear Creek and the Gold Fields, and includes Dredge #4, Discovery Claim and the upper Bonanza Reserve. These sites improve tourists' understanding of the Gold Rush of 1897-98 and are open to the public from early June to the end of September.

13.2.9 S.S. Klondike National Historic Site

The S.S. Klondike, a steampowered sternwheeler, commemorates the history of transportation in the Yukon and its effect on the territory's development. The legendary boat is located on the shore of the Yukon River at Whitehorse and is open to the public from early June to the end of September.

13.2.10 Chilkoot Trail Proposed National Historic Park

Although the Chilkoot Trail is in British Columbia, adjacent to the Yukon border, it is intimately linked to the historical and cultural fabric of Yukon's Gold Rush era. The trail was the major passageway from tidewater Alaska to the Yukon gold fields.

The Chilkoot Trail straddles the Canada-U.S. border at the northern end of the Alaskan Panhandle, extending for 53 km from Dyea, Alaska to Bennett Lake, British Columbia. Many historic sites are along the trail, including remnants of boat building factories, platforms of tent towns and abandoned rail lines. Hiking on the Chilkoot Trail is a popular backpacking adventure during July and August.

13.2.11 Territorial Parks — N.W.T.

The territorial park system includes four types of parks: 24 wayside or roadside parks, 11 community parks, 7 historic parks and 1 outdoor recreation park. The N.W.T. maintains these parks.

Wayside parks are located along the three N.W.T. highway systems. The parks offer boat launches, campgrounds, and picnic and viewing sites. Community parks are in or near N.W.T. communities and are fully serviced. Outdoor recreation parks, such as Blackstone Territorial Park, offer various services including hiking trails and interpretive facilities.

Park rules forbid persons to camp in one public campground for more than 14 days per year, without a park officer's written permission. Visitors must have an annual vehicle entrance permit, which costs $10 for residents and $15 for non-residents. Also, some campgrounds charge $8 to $10 per night.

The Ingraham Trail near Yellowknife is a 70 km stretch of road, lined with lakes, trails and camping areas. The two territorial parks on this trail, Prelude and Reid Lake, feature many outdoor facilities including camping, boat launches and picnic areas. (See figure 13-1.)

13.2.12 Territorial Parks — Yukon

Yukon has about 52 campgrounds as well as other sites for day use only. Users must purchase day or seasonal permits. Non-resident campground fees are $5 per day. Residents also pay $5 per day, but may purchase an annual permit for $25. Campground sizes range from 4 tent sites to more than 100 spaces. Most campgrounds are along all Yukon highways. More than 24 wilderness camps have been developed where access is by foot, canoe or aircraft. Facilities usually include tent pads with tables at each site and a centrally located well, kitchen shelter with stove and wood, and pit privies. Campgrounds on the water usually have boat launching ramps.

The Yukon government has designated Herschel Island, located 5 km off the north coast, the first Yukon territorial park. (See Figure 13-1.) The island's natural features and early occupation by Inuit, Inuvialuit and Gwich'in (Loucheux) prior to their contacts with European civilization, European and North American whalers, make it one of Yukon's most important historic and natural areas. Herschel Island is well known for its diverse flora and fauna, including Arctic wild flowers, land and sea mammals and waterfowl. Visitor facilities are now limited and development depends on the terms of a park management plan under consideration.

13.3 Commercial Facilities

13.3.1 Locations, Accommodation, Rates

In both Yukon and the N.W.T., all but the smallest communities have hotel and/or motel accommodation as well as restaurant facilities. However, reservations are usually necessary, especially in the summer. Price ranges for accommodation are generally similar to or somewhat higher than those in southern Canada. Rates are subject to change without notice and should be checked at the time of travel.

In Whitehorse (a city with more than three-fifths of the population of Yukon) there are 900 hotel and motel rooms, fine restaurants and cocktail lounges and all the usual urban amenities — shops, cinemas, tour and travel agents, banks, hospitals, etc. Convention facilities are available for meetings of up to 400 people. The cross-country ski chalet at the Mount MacIntyre Recreation Centre includes a convention room, a lounge, a restaurant, showers and saunas.

A complete listing of available recreational services, facilities and roadside lodges is published in the official Yukon travel guide, *Yukon — The Magic and the Mystery* and the *Yukon Wilderness Adventure Guide*.

Contact: Tourism Yukon
Box 2703
Whitehorse, Yukon
YlA 2C6
Tel: (403) 667-5340

For those travelling by car in Yukon, government information centres are open seven days a week from mid-May to mid-September in Watson Lake, Whitehorse, Haines Junction (Kluane Park headquarters), Beaver Creek and Dawson City.

Travellers' accommodation is also widely available in the N.W.T. — from the capital, Yellowknife, with just under 1,565 hotel or motel rooms, to Grise Fiord, 1,930 km to the northeast, which offers accommodation for 15 in nine rooms with kitchen facilities at the Grise Fiord Lodge. The N.W.T. also has over 60 lodges and camps, and many outfitters serving sport fishermen, hunters and naturalists.

Detailed information is given in the *Explorers' Guide — Within Reach Yet Beyond Belief*. Write to TravelArctic, Box 1320, Yellowknife, N.W.T. XIA 2L9. In Yellowknife, the Northern Visitors Association is open all year and there are government Visitor Information Centres at 60° north on Highway 1 and south of Fort McPherson on the Dempster Highway. These are open only during the summer months.

13.3.2 Activities — Fly-In Fishing, Hunting, Touring — Accommodation, Facilities, Cost

In the North, fly-in fishing trips not only guarantee top-notch fishing, but also provide an opportunity to see this spectacular country from the air.

In Yukon the fees for fishing licences are:

Yukon resident	$15 per season (April 1 — March 31)
Canadian resident	$25 per season (April 1 — March 31)
Non-Canadian resident	$35 per season (April 1 — March 31)

Licences are also available for one-day and six-day periods:

One-day Canadian resident	$5
Six-day Canadian resident	$15
Non-Canadian resident (six-day)	$20

In the N.W.T. the fees for fishing licences are:

Canadian resident	$5 per season (April 1 — March 31)
Non-resident	$15 per season (April 1 — March 31)

Note: In the N.W.T. no distinction is made between an N.W.T. resident and other Canadian residents. A non-resident is a person who has lived in Canada for less than six consecutive months.

The N.W.T. and Yukon have regulations on the types of fish that can be caught and the fishing method used.

For more information on fishing in the N.W.T., consult the *Sport Fishing Guide*, available from:

Department of Renewable Resources
Government of the Northwest Territories
Yellowknife, N.W.T.
X1A 2L9

For information about fishing in Yukon, contact:

Department of Renewable Resources
Fish and Wildlife Branch
10 Burns Road
P.O. Box 2703
Whitehorse, Yukon
Y1A 2C6

For information on outfitters and guides in any region, contact:

In Yukon:

General Inquiries
Tourism Yukon
Government of Yukon
P.O. Box 2703
Whitehorse, Yukon
Y1A 2C6
Tel: (403) 667-5340

In the N.W.T.:

TravelArctic
Government of the Northwest Territories
P.O. Box 1320
Yellowknife, N.W.T.
X1A 2L9
Tel: (403) 873-7200

Accommodation prices vary, depending on the number of persons and services, and should be checked at travel time.

The Northwest Territories is well known for the trophy quality of its sport fisheries. The Tree River, Great Bear and Great Slave Lakes and the upper Mackenzie River are being managed as trophy fisheries. Charter planes with floats are available in many communities and fly-in fishing is easily arranged. Charter rates start at about $2.04 per air mile including fuel for a Cessna 185.

Yukon and the N.W.T. are the last true wilderness areas in North America where big game trophy animals still exist in relatively large numbers. Hunters come from all parts of the world to participate in this activity.

In the N.W.T., licences are required to hunt 13 species of wildlife, including small game. Fees vary according to the hunter's residency. For example, a N.W.T. resident pays $5 to hunt moose, a non-resident pays $10 and a non-Canadian resident pays $25. The number of animals that may be taken is limited. Which applies to all species and varies according to the hunter's residency. When an animal is taken or bagged, non-N.W.T. residents and non-Canadian residents must pay a trophy fee. The bag limit for moose, for example, for a N.W.T. resident is one animal, any age or sex; for a non-resident or non-Canadian resident, one male animal. The trophy fees are $100 for both the non-resident and non-Canadian resident hunters, but only if the bagged animal is exported from the N.W.T. Trophy fees do not apply to small game. All non-residents and non-Canadian residents must hire a licensed outfitter to hunt big game, but not small game. Outfitters provide licensed guides to ensure hunters follow other specific regulations on correctly identifying a potential trophy animal.

The Hunters and Trappers Associations in the N.W.T. administer the regulations pertaining to the hunting of polar bear. Sport hunting is allowed only by dog teams. The associations are given about 630 tags and may sub-allocate about 85 tags to the following outfitters:

Qaivvik Outfitters
Box 1538
Yellowknife, N.W.T.
X1A 2P2
Tel: (403) 873-2074

Guided Arctic Expeditions
Box 2120
Inuvik, N.W.T.
X0E 0T0
Tel: (403) 979-2408

Canada North Expeditions
Box 2435
Yellowknife, N.W.T.
X1A 2P8
Tel: (403) 920-2196

Canada North Outfitters
Box 1230
Waterdown, Ontario
L0R 2H0
Tel: (416) 689-7925

Polar bear hunts are booked through the Hunters and Trappers Associations. For more information on polar bear hunting in the N.W.T., contact:

Director
Conservation Education Section
Department of Renewable Resources
Government of Northwest Territories
Yellowknife, N.W.T.
Tel: (403) 920-8716

In Yukon, current hunting regulations require that hunters have a hunting licence, and appropriate seals (tags), which must accompany killed big-game animals. Licence fees for big and small game and game birds are: Yukon resident, $10; non-Yukon Canadian resident, $75; and non-Canadian resident, $150. Seal fees are $10 for mountain sheep, $5 for moose, $25 for grizzly bear, $5 for caribou, $10 for mountain goat, and $5 for black bear. Wolf, coyote and wolverine do not require seals. Seal fees do not apply to Indians or to Yukon residents 65 years of age or older. Only non-residents must pay trophy fees on big-game animals killed. These fees apply whether or not the animal is exported from Yukon. Trophy fees range from $50 for a coyote to $250 for a mountain sheep.

A non-resident big-game hunter must use a registered outfitter or a resident with a special guiding licence. The Yukon has 20 outfitters, each assigned to a specific area. Only Yukon residents may apply for Permit Hunt Authorizations (PHAs) that allow hunting in several game management zones; 99 PHAs are authorized. Big game animals have bag limits and seasonal restrictions.

General travel and accommodation information for Yukon is available through:

Tourism Industry Association of the Yukon
#102-302 Steele Street
Whitehorse, Yukon
Y1A 2C6
Tel: (403) 668-3331

Wilderness expeditions, other than fishing and hunting, include ski-touring, snowshoeing, dog-sledding, hiking, mountaineering, horseback riding and canoeing tours, which are conducted from various camps and lodges. These trips may be guided, or the traveller may rent gear and transportation for unguided trips. Topographic maps are available from:

Energy, Mines and Resources Canada
Surveys, Mapping and Cartographic Information Centres
615 Booth Street
Ottawa, Ontario
K1A 0E9
Tel: (613) 998-3865

Topographic maps are also available from several stores in Whitehorse.

13.4 Sports

13.4.1 Local Events — Participation

In Yukon, the Sports, Arts and Recreation Branch of the Department of Community and Transportation Services, and the Yukon Lotteries Commission give financial assistance to communities and organizations for developing sports, arts and recreational programs. Events vary from the Sourdough Rendezvous in Whitehorse at the end of February to the Discovery Days celebrations in Dawson City in the second weekend of August.

Whitehorse holds an annual arts and crafts fair each November. Seven theatre groups put on presentations ranging from drama to musical comedy.

The annual Yukon Quest International Dog Sled Race held in February between Fairbanks, Alaska and Whitehorse has become a major event. The start and finish lines alternate each year between the two cities.

Watson Lake's winter festival, the Kiki Carnival, is held each February. Large annual curling bonspiels are held in Elsa, Destruction Bay, Haines Junction, Whitehorse and Dawson City.

The Klondike Trail of '98 Road Relay is held each September. Runners from Yukon, Alaska, Western Canada and the western United States compete for honours in a race that begins in Skagway, Alaska and ends in Whitehorse. Table 13-2 is list of events in a typical year in the Yukon.

The Mount MacIntyre Recreation Centre in Whitehorse is a popular recreational retreat. The centre sponsors ski, curling and darts clubs and has 2,000 members. In 1981, the final event of the World Cup Cross-Country Ski Series was held in Whitehorse at the recreation centre's ski chalet, where there is a 35 km-network of world-class ski trails.

Community sports associations and their memberships have dramatically increased in the N.W.T., as a result of the efforts of Sport North (the Federation of Territorial Sport Associations). Sport North has been developing sporting opportunities, qualified coaches and community recreational leadership.

Recreational sports are often cultural, as in the Northern Games. These feature traditional Inuit and Indian sports, dances, drumming competitions and the popular Good Woman Contest — a display of traditional life skills. Regional events of the Northern Games take place annually, and a national competition is usually held every two years.

As in Yukon, winter sports in the N.W.T. include dog races, skiing, snowshoe and snowmobile racing. The N.W.T. also has imported games such as curling, and uniquely northern events such as igloo building. Table 13-3 is a complete list of events for a typical year in the N.W.T.

References

Government of the Northwest Territories, *Explorers' Guide — Within Reach, Yet Beyond Belief.* Yellowknife: TravelArctic, 1989.

Government of the Northwest Territories, Department of Renewable Resources. *Sport Fishing Guide.* Yellowknife: 1988.

Government of the Northwest Territories, *Tourism Facts 1987:* A Statistical Report of tourism/travel and tourism research in the Northwest Territories, Canada. Yellowknife. 1987.

Government of the Northwest Territories, Department of Tourism. *1987 Yukon Visitor Exit Survey.* Part 1: "Visitors to the Yukon: Basic Information." Whitehorse. 1988.

Tourism Industry Association of the Yukon, *Yukon Wilderness Adventure Guide.* Whitehorse. 1988.

Tourism Yukon and the Tourism Industry Association of the Yukon, *Yukon: The Magic and the Mystery.* Whitehorse. 1989.

Wilson, Ian. *Wilderness Seasons: Life and Adventure in Canada's North.* Vancouver: Ptarmigan Press, 1987.

Table 13-1

Tourists and Their Expenditures in the N.W.T. and Yukon

	N.W.T.		Yukon	
Year	Tourists	Expenditures	Tourists	Expenditures
1987	58,000	$50,950,000	193,700	$37,000,000
1988	60,000	$57,000,000	190,000*	$35,000,000*

Source: *Tourism Facts 1987*, TravelArctic, Government of the Northwest Territories; 1988 Update to *Tourism Facts*

1987 Yukon Visitor Exit Survey, Part 1: "Visitors to the Yukon Basic Information", Department of Tourism, Government of Yukon.

* Estimates, Department of Tourism, Government of Yukon

Note: The numbers of visitors to the N.W.T. and Yukon are derived from surveys conducted in June, July, August and September. It includes visitors for all purposes (business, pleasure and personal). Expenditures are payment for transportation, accommodation, food and beverage, entertainment and miscellaneous retail good and services.

Table 13-2

Typical Special Events Calendar — Yukon

Event	Approximate Date	Location
Southern Lakes Classic Dog Sled Race	February	Carcross
Yukon Sourdough Rendezvous	February	Whitehorse
Kiki Carnival	February	Watson Lake
Yukon Championship Dog Race	February	Whitehorse
Frostbite Music Festival	February	Whitehorse
Yukon Ski Biathlon Championship	February	Whitehorse
Sixth Annual Yukon Quest	February	Whitehorse
Atlin Mail Run	March	Carcross
Top of the World Curling Bonspiel	March	Dawson City
Spring Carnival	March	Dawson City
Percy De Wolfe Race and Mail Run	March	Dawson City
Teslin Dog Sled Race	March	Teslin
Old Timers Hockey Tournament	March	Whitehorse
Dog Races	March	Whitehorse
Yukon Gold Loppet	March	Whitehorse
International Bonspiel	April	Elsa
Gold Show	May	Dawson City
Sourdough Stompers Square and Round Dance Jamboree	May	Whitehorse
Six Carrot Market	May	Whitehorse
Commissioner's Ball	June	Dawson City
Haines Junction Fly-in	June	Haines Junction
Northern Storytelling Festival	June	Haines Junction
International Trap Shoot	June	Carcross
Midnight Sun Golf Tournament	June	Whitehorse
Yukon Indian Days	July	Whitehorse
Yukon Gold Panning Championship	July	Dawson City
Midnight Dome Race	July	Dawson City
Dawson City Music Festival	July	Dawson City
Horse Show	July	Whitehorse
Discovery Days	August	Dawson City
Silver Ball Tournament	August	Elsa
Square Dance Tour	August	Mayo
Discovery Days Parade	August	Watson Lake
Firewood Summer Festival	August	Whitehorse
The Great Klondike Outhouse Race	September	Dawson City
Klondike Dart Tournament	September	Dawson City
Klondike Trail of '98 Road Relay	September	Whitehorse
Oktoberfest	October	Elsa
Spruce Bog Craft Fair	November	Whitehorse
Mixed Bonspiel	November	Whitehorse
Media Cup Dog Races	November	Whitehorse
Don Sumanik Home-coming Ski Races	December	Whitehorse

Source: *Yukon — The Magic and the Mystery*, Tourism Yukon and Tourism Industry Association of the Yukon, Whitehorse, Yukon

Table 13-3

Typical Special Events Calendar — N.W.T.

Event	Approximate Date	Location
Sunrise Festival	January	Inuvik
N.W.T. Ski Championship	February 25 & 26	Fort Smith
Men's Hockey Tournament	February	Fort Simpson
Winter Carnival	March	Detah
Pioneer Days	March	Fort Smith
Fun in the Snow	March	Norman Wells
Championship Dog Derby	March 24-26	Yellowknife
Ski Marathon	March 18	Yellowknife
South Slave Dene Winter Games	March 15	Fort Resolution
Hamlet Days	April	Baker Lake
Peel River Jamboree	April	Fort McPherson
Toonik Tyme	April	Iqaluit
Top of the World Ski Championship	April	Inuvik
Nattik Frolics	April	Coppermine
Beluga Jamboree	April	Tuktoyaktuk
Recreational Hockey Tournament	May	Yellowknife
White Fox Jamboree	May	Sachs Harbour
Umingmuk Frolics	May	Cambridge Bay
Hamlet Days	May	Chesterfield Inlet
Arviat Spring Festival	May	Arviat
Spring Trade Fair	May	Yellowknife
Annual Midnight Golf Tournament	June	Yellowknife
Canada Week Celebrations	June 21 — July 1	Yellowknife
Midnight Madness	June	Inuvik
Midway Lake Music Festival	June	Fort McPherson
Car Rally Races	June	Fort Smith
10 km Run	June	Yellowknife
Canada Day	July 1	All communities
Folk on the Rocks	July	Yellowknife
Keewatin Summer Games	July	Repulse Bay
Kitikmeot Northern Games	July	Gjoa Haven
Old Fashioned Pine Lake Picnic	July	Fort Smith
Community Celebration	July	Fort Liard
Hamlet Days	July	Coral Harbour
Mackenzie Daze	August	Fort Providence
N.W.T. Fiddling Championship	August	Inuvik
Place of Man Golf Tournament	August	Inuvik
Black Bear Jamboree	August	Norman Wells
Dene Summer Games	August	Rae Edzo
Commissioner's Cup Race	August	Yellowknife
Prelude Lake Fishing Derby	August	Yellowknife
Deninoo Days	August	Fort Resolution
Fall Fair	September	Hay River
Hamlet Days	September	Eskimo Point
Country Fair North of Sixty	September	Yellowknife
Ultra Marathon	September	Hay River
Thanksgiving	October	inuvik
Arctic Christmas Festival	December	Spence Bay

Source: *1989 Explorers' Guide — Within Reach, Yet Beyond Belief*, TravelArctic, Government of the Northwest Territories, Yellowknife, N.W.T.

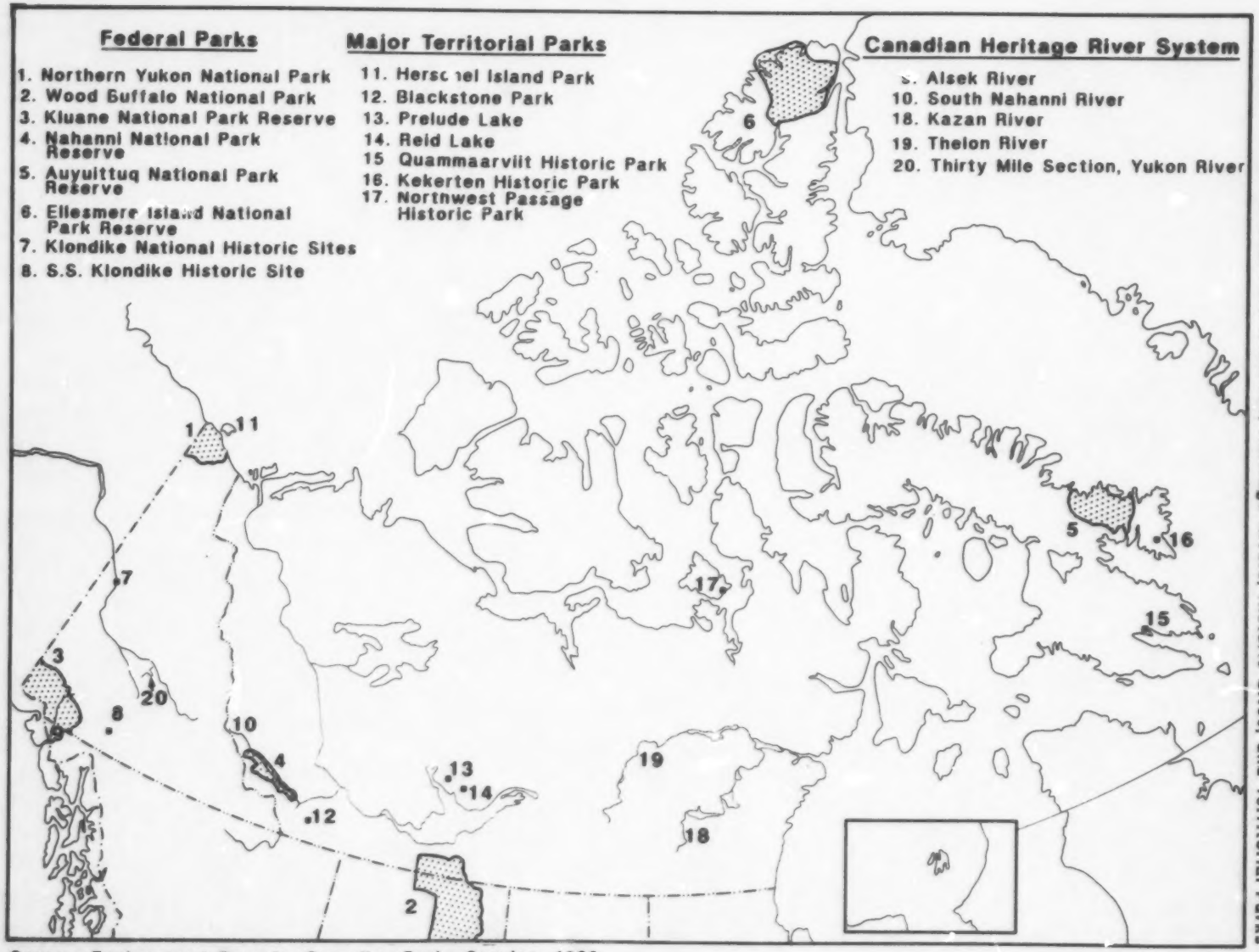
Federal Parks
1. Northern Yukon National Park
2. Wood Buffalo National Park
3. Kluane National Park Reserve
4. Nahanni National Park Reserve
5. Auyuittuq National Park Reserve
6. Ellesmere Island National Park Reserve
7. Klondike National Historic Sites
8. S.S. Klondike Historic Site
Major Territorial Parks
11. Herschel Island Park
12. Blackstone Park
13. Prelude Lake
14. Reid Lake
15 Quammaarviit Historic Park
16. Kekerten Historic Park
17. Northwest Passage Historic Park
Canadian Heritage River System
9. Alsek River
10. South Nahanni River
18. Kazan River
19. Thelon River
20. Thirty Mile Section, Yukon River

Figure 13-1
National Parks, National Park Reserves, Heritage Rivers, Historic Sites, and Territorial Parks

Source: Environment Canada. Canadian Parks Service, 1989
Yukon Department of Renewable Resources, Parks and Outdoor Recreation
GNWT Department of Economic Development & Tourism and Parks

14.0 Locations of Government Offices in the North

Both the federal and territorial governments have offices throughout the North. Locations, mailing addresses and telephone numbers are listed below.

14.1 Federal Government Departments and Agencies.

Agriculture Canada — *Telephone Number*

10 Burns Road
Whitehorse, Yukon
Y1A 4Y9 (403) 667-5272

Canadian Broadcasting Corporation: Northern Service

CBC Inuvik
Bag Service 8
MacKenzie Road
Inuvik, N.W.T.
X0E 0T0 (403) 979-4411

CBC Mackenzie
Box 160
Yellowknife, N.W.T.
X0E 1H0 (403) 873-3464

CBC Iqaluit
Box 490
Iqaluit, N.W.T.
X0A 0H0 (819) 979-5353

CBC Keewatin
Rankin Inlet, N.W.T.
X0C 0G0 (819) 645-2885

CBC Yukon
3101-3rd Avenue
Whitehorse, Yukon
Y1A 1E5 (403) 667-6261

Canada Mortgage and Housing Corporation

PO Box 2460
Yellowknife, N.W.T.
X1A 2P8 (403) 873-2637

Suite 402
3106 — 3rd Avenue
Whitehorse, Yukon
Y1A 5G1 (403) 667-4236

Canada Post Corporation

308 Main Street
Whitehorse, Yukon
Y1A 2B0 (403) 667-2412

4902 — 50th Avenue
Yellowknife, N.W.T.
X1A 1C0 (403) 873-3545

Department of Communications

Inspector
Box 540
Fort Smith, N.W.T.
X0E 0T0 (403) 872-2187

10th floor
Precambrian Building
Box 2700
Yellowknife, N.W.T.
X1A 2R1 (403) 920-6603

201 — 4133 Fourth Avenue
Whitehorse, Yukon
Y1A 1H8 (403) 667-5102

Department of Employment and Immigration

Scotia Centre
5102-50th Avenue
Bag Service 1170
Yellowknife, N.W.T.
X1A 2R3 (403) 920-8400

Room 101 Federal Building
Whitehorse, Yukon
Y1A 2B5 (403) 667-5050

Canada Employment Centres

Federal Building
P.O. Box 380
Fort Simpson, N.W.T.
X0E 0N0 (403) 695-2238

Pinecrest Building
McDougal Road
P.O. Box 1018
Fort Smith, N.W.T.
X0E 0P0 (403) 872-2747

Royal Bank Building
P.O. Box 639
Iqaluit, N.W.T.
X0A 0H0 (819) 979-5315

Federal Building, Room 202
P.O. Box 1065
Hay River, N.W.T.
X0E 0R0 (403) 874-6739

Kingmingya Road
P.O. Box 1678
Inuvik, N.W.T.
X0E 0T0 (403) 979-2122

General Delivery
Rankin Inlet, N.W.T.
X0C 0G0 (819) 645-2853

Department of Energy, Mines and Resources

Precambran Building
4922-52nd Street
Box 68
Yellowknife, N.W.T.
X1A 2N1 (403) 920-8478

Department of the Environment

In addition to the following locations, there are weather stations operated by the Atmospheric Environment Service at many northern points (generally wherever there is an airport with regular service). See the local telephone directory for listings or call the airport.

Environmental Protection Service
Room 225, Federal Building
308 Main Street
Whitehorse, Yukon
Y1A 2B5 (403) 667-3400

Environmental Protection Service
Box 2970
Yellowknife, N.W.T.
X1A 2R2 (403) 873-3456

Canadian Wildlife Service
202-204 Range Road
Whitehorse, Yukon
Y1A 3V1 (403) 668-2285

Canadian Wildlife Service
9th Floor
Bellanca Building
Box 2970
Yellowknife, N.W.T.
X1A 2R2 (403) 920-8530

Canadian Parks Service
10th Floor, Bellanca Bldg.
P.O. Box 2970
Yellowknife, N.W.T.
X1A 2R2 (403) 873-8477

Department of Fisheries and Oceans

122 Industrial Road
Whitehorse, Yukon
Y1A 2T9 (403) 667-2235

Box 2310
Yellowknife, N.W.T.
X1A 2R7 (403) 920-6640

Department of National Health and Welfare

Medical Services Branch
Yukon Region
No. 2 Hospital Road
Whitehorse, Yukon
Y1A 3H8 (403) 668-6461

Department of Indian Affairs and Northern Development

Northern Affairs Program
200 Range Road
Whitehorse, Yukon
Y1A 3V1 (403) 667-3100

PO Box 1500
Yellowknife, N.W.T.
X1A 2R3 (403) 920-8110

Indian and Inuit Affairs Program
PO Box 4100
Whitehorse, Yukon
Y1A 3S9 (403) 667-3344

4914-50th Street
Bellanca Building
PO Box 2760
Yellowknife, N.W.T.
X0E 1H0 (403) 920-8275

Department of Industry, Science and Technology

Industry, Science and Technology
and International Trade Centre
Suite 301
108 Lambert Street
Whitehorse, Yukon
Y1A 1Z2 (403) 668-4655

Industry, Science and Technology
and International Trade Centre
Precambrian Building
10th Floor
Bag 6100
Yellowknife, N.W.T.
X1A 2R3 (403) 920-8568

Department of Justice

Box 8
Yellowknife, N.W.T.
X1A 2N1 (403) 920-8564

204 Lambert Street
Whitehorse, Yukon
Y1A 1Z4 (403) 668-7171

Department of Labour
Bag 2737
Whitehorse, Yukon
Y1A 3V5 (403) 668-4346

Department of National Defence

Canadian Forces Northern Region
Detachment, Whitehorse
Room 241
Federal Building
Whitehorse, Yukon
Y1A 2B5 (403) 667-2559

Northern Region Headquarters
P.O. Box 6666
Yellowknife, N.W.T.
X1A 2R3 (403) 873-4011

Department of National Revenue

Revenue Canada
Customs and Excise
P.O. Box 4520
Whitehorse, Yukon
Y1A 2R8 (403) 667-6471

Revenue Canada
Customs and Excise
General Delivery
Beaver Creek, Yukon
Y0B 1A0 (403) 862-7230

Revenue Canada
Customs and Excise
Little Gold
P.O. Box 4520
Whitehorse, Yukon
Y1A 2R8 (403) 667-6471
Little Gold Office (403) 667-1311
Mobile Radio JJ3-6555

Revenue Canada
Customs and Excise
Bag 313
Dawson City, Yukon (403) 667-6471
Y0B 1G0 (403) 993-5455

Revenue Canada
Customs and Excise
Old Crow
C/O R.C.M. Police
General Delivery
Old Crow, Yukon (403) 667-6471
Y0B 1N0 (403) 996-3211

Public Service Commission of Canada

4114 — 4th Avenue, Suite 302
Whitehorse, Yukon
Y1A 4N7 (403) 668-4487

Box 2730
Yellowknife, N.W.T.
X1A 2R1 (403) 873-3545

Department of Public Works

201 Range Road
Whitehorse, Yukon
Y1A 3A4 (403) 668-2181

Box 518
Yellowknife, N.W.T.
X1A 2N4 (403) 873-4492

Royal Canadian Mounted Police

Ther are posts and detachments of the RCMP throughout the North. Check local telephone directories for listings, or contact:

Commanding Officer
"M" Division
4100-4th Avenue
Whitehorse, Yukon
Y1A 1H5 (403) 667-5555

Commanding Officer
"G" Division
RCMP
Bag 5000
Yellowknife, N.W.T.
X1A 2R3 (403) 920-8320

Department of the Secretary of State:

Room 240, Federal Building
308 Main Street
Whitehorse, Yukon
Y1A 2B5 (403) 668-2721

Room 202 Scotia Centre
PO Box 610
Yellowknife, N.W.T.
X1A 2N5 (403) 920-8270

Department of Supply and Services:

Whitehorse Regional Purchasing Office
102 — 307 Jarvis Street
Whitehorse, Yukon
Y1A 2H3 (403) 668-5808

Department of Transport

Electronics Centre Manager
Box 310
Yellowknife, N.W.T.
X0E 1H0 (403) 873-4041

Electronics Centre Manager
Room 215, Operations Building
Whitehorse Airport
Whitehorse, Yukon (403) 668-2662
Y1A 3E4

Canadian Coast Guard Base
Box 5002
Hay River, N.W.T.
X0E 0R0 (403) 874-5501

Telecommunications Regulations Branch
4133 — 4th Avenue, Room 201
Whitehorse, Yukon
Y1A 1H8 (403) 667-5012

Airport Manager
Transport Canada
Room 03-16
Airport Terminal Building
Whitehorse, Yukon
Y1A 3E4 (403) 668-2300

14.1.1 Ministers of the Crown

The Hon. Thomas E. Siddon
Minister of Indian Affairs and Northern Development
Room 121
House of Commons
East Block
K1A 0A6
(613) 995-4988

The Hon. Shirley Martin
Minister of State
Indian Affairs and Northern Development
Room 584
House of Commons
Confederation Building
K1A 0A6
(613) 996-5376

Executive Offices for the Minister and Minister of State:

Department of Indian Affairs and Northern Development
Terrasses de la Chaudière
10 Wellington Street, North Tower
Hull, Quebec

Postal Address:
Ottawa, Ontario K1A 0H4
Telex: 053-3711
Fax: (819) 997-0511
(819) 997-0514
(819) 997-1587
Telephone: (819) 997-0002

14.1.2 Members of Parliament

House of Commons:

Jack Iyerak Anawak, M.P.
Liberal, Nunatsiaq
Room 453
House of Commons
Parliament Buildings
West Block
K1A 0A6
(613) 992-2848

Riding Office:
Rankin Inlet,
N.W.T.
X0C 0G0

Ethel Blondin, M.P.
Liberal, Western Arctic
Room 255
House of Commons
Parliament Buildings
West Block
K1A 0A6
(613) 992-4587

Riding Office:
Box 604
Main Floor
Arthur Laing Bldg
Yellowknife, N.W.T.
X1A 2N5
(403) 873-6995
Fax: (403) 920-4233

Audrey McLaughlin, M.P.
NDP, Yukon
Room 535
House of Commons
Parliament Buildings
Center Block
K1A 0A6
(613) 992-3602
Fax: (613) 992-0972

Riding Office:
6-210 Lambert Street
Whitehorse, Yukon
Y1A 1Z4
(403) 668-3030

The Senate:

The Hon. Willie Adams
Liberal, Northwest Territories
Room 485-S
The Senate
Parliament Buildings
K1A 0A4
(613) 992-4753

The Hon. Paul Lucier
Liberal, Yukon Territory
Room 163-S
The Senate
Parliament Buildings
K1A 0A4
(613) 992-2568

14.2 Government of Yukon

Unless otherwise noted all government departments are located in the:

Yukon Government Administration Building
2071-2nd Avenue
Whitehorse, Yukon
Y1A 1B2

Mail should be addressed to the department concerned at:

Government of Yukon
Box 2703
Whitehorse, Yukon
Y1A 2C6

Commissioner's Office

Commissioner of the Yukon
J. Kenneth McKinnon (403) 667-5121

Executive Council *Area Code (403)*

The Hon. Tony Penikett, *NDP Whitehorse West**
Government Leader M.L.A. Office: 667-5122
Minister of Executive Council Office
Minister of Health and Human Resources
Minister responsible for the Yukon Development Corporation

The Hon. Art Webster, *NDP Klondike**
Minister of Tourism M.L.A. Office: 667-5307
Minister responsible for Renewable Resources
Minister responsible for the Yukon Liquor Corporation
Chair of the Cabinet Sub-Committee on Economic Policy

The Hon. Maurice Byblow, *NDP Faro**
Minister of Community and Transportation Services M.L.A. Office: 667-5974
Minister of Government Services
Minister responsible for the Yukon Housing Corporation

The Hon. Piers McDonald, *NDP Mayo**
House Leader M.L.A. Office: 667-5974
Minister of Education
Minister of Finance
Minister of Economic Development
Chair, Management Board

The Hon. Margaret Joe, *NDP Whitehorse North Centre**
Minister of Justice M.L.A. Office: 667-5974
Minister responsible for the Public Service Commission
Minister responsible for the Workers' Compensation Board
Minister responsible for the Women's Directorate
Chair of the Cabinet Sub-committee on Social Policy

*Address for Cabinet ministers: Box 2703, Whitehorse, Yukon Y1A 2C6

Government Departments and Agencies:

Executive Council Office

Deputy Minister	667-5421
Office of Devolution	667-3591
Policy and Intergovernmental Relations	667-5854

Director/Senior Advisor on National Issues
Federal Relations Office
Government of Yukon
350 Sparks Street, Suite 707
Ottawa, Ontario
K1R 7S8 (613) 234-3206

Land Claims Secretariat	667-5878
Public Affairs Bureau	667-5431
Bureau of Statistics	667-5463
Internal Audit and Evaluation	667-5316
French and Aboriginal Language Services	667-3735

Legislative Assembly Office

Clerk of the Assembly and Chief Electoral Officer	667-5498
Government Members	667-3543
Opposition Members	667-3767

Economic Development: Mines and Small Business

Deputy Minister	667-5417
Director, Finance and Administrative Services	667-5016
Assistant Deputy Minister, Economic Research and Planning	667-5389
Director, Energy & Mines	667-5462
Director, Business Development	667-3014

Education, Advanced Education and Manpower

Deputy Minister	667-5126
Assistant Deputy Minister, Public Schools	667-5127
Coordinator, French Language Centre	668-8831
Assistant Deputy Minister, Advanced Education	667-5131
President, Yukon College	668-8704
Director, Library and Archives	667-5321

Finance

Deputy Minister	667-3571

Government Services

Deputy Minister	667-5744
Purchasing Information	667-5735
Manager, Transportation/Communications	667-5793
Queen's Printer	667-5783
Director, Administration	667-5410
Building and Rentals Manager Property Management	667-3420
Assistant Deputy Minister, Property Management	667-5150
Manager, Building Development	667-5805

Health and Human Resources

Deputy Minister	667-5770
General Inquiries	667-5674
Director, Health Services	667-5202
Coordinator, Alcohol & Drug Services	667-5777
Coordinator, Vocational Rehabilitation	667-5669
Family and Children's Services	667-3002
Speech and Hearing Services	667-5913
Director, Juvenile Justice	667-5684

Community and Transportation Services	
Deputy Minister	667-5144
Director, Finance and Administration	667-5311
Municipal Administration	667-5486
Director, Municipal Engineering	667-5707
Motor Vehicles	667-5315
Weigh Stations and Enforcement	667-5920
Manager, Aviation and Marine	667-5830
Assistant Deputy Minister, Transport Services	667-5144
Assistant Deputy Minister, Municipal and Community Affairs	667-5636

Justice	
Deputy Minister	667-5959
Land Titles	667-5612
Public Administrator/Chief Coroner	667-5317
Public Administrator, Administrative Services	667-5446
Territorial Court	667-5441
Sheriff, Sheriff's Office	667-5451
Judges' Secretary, Supreme Court of Yukon	667-4431
Director, Corrections and Law Enforcement	667-5364
Chief Probation Officer, Adult Probation Services	667-5231
Consumer, Corporate and Labour Affairs	667-5256
Consumer Services	667-5257
Corporate Affairs	667-5225
Labour Services	667-5259

Public Service Commission	
Public Service Commissioner	667-5252
Director, Recruitment & Labour Relations	667-5321
Director, Compensation	667-5201
Director, Recruitment and Training	667-5250

Renewable Resources	
Deputy Minister	667-5460
Parks, Resources and Regional Planning	667-5905
Wildlife Management Branch	667-5721
Director, Fish and Wildlife Branch	667-5715
Regional/District Offices	
Dawson	993-5492
Haines Junction	634-2247
Mayo	996-2202
Ross River	969-2202
Watson Lake	536-7363

Tourism Recreation and Culture	
Deputy Minister	667-5430
Director, Heritage Branch	667-5363
Director of Tourism Development	667-5633
Director, Marketing	667-5390

Women's Directorate	667-5182

Workers' Compensation Board	667-5645
Suite 300	
4114 — 4th Avenue	
Whitehorse, Yukon	
Y1A 4N7	
Contact: Brian Booth	

Yukon Development Corporation	667-5028
Box 2703	
Mail Code D1	
Whitehorse, Yukon	
Y1A 2C6	
Contact: Alex Raider	

Yukon Energy Corporation	667-5028
Box 2703	
Mail Code D1	
Whitehorse, Yukon	
Y1A 2C6	
Contact: Alex Raider	

Yukon Housing Corporation	667-5759
410A Jarvis Street	
Whitehorse, Yukon	
Y1A 2C5	
Contact: Maurice Albert	

Yukon Liquor Corporation	667-5245
Building 278	
9031 Quartz Road	
Whitehorse, Yukon	
Y1A 4P9	
Contact: Andy Vantell	

14.3 Government of the Northwest Territories

Unless otherwise noted, all GNWT offices are in Yellowknife.

Mailing address for all departments:

P.O. Box 1320,
Government of Northwest Territories
Yellowknife, N.W.T.
X1A 2L9

Commissioner's Office

Commissioner of the Northwest Territories
Daniel L. Norris 873-7400

Executive Council	*Area Code (403)*
The Hon. Dennis Patterson	Iqaluit
Government Leader	873-7112
The Hon. Michael Ballantyne	Yellowknife North
Minister of Finance and Justice	873-7658

The Hon. Titus Allooloo Minister of Renewable Resources, Culture and Communications Aboriginal Rights and Constitutional Development (Associate)	Amittuq 873-7113
The Hon. Gordon Wray Minister of Economic Development and Tourism, Transportation N.W.T. Highway Transport Board	Kivallivik 873-7962
The Hon. Jeannie Marie-Jewell Social Services and Personnel	Slave River 873-7959
The Hon. Stephen Kakfwi Minister of Education Minister of Aboriginal Rights and Constitutional Development	Sahtu 873-7139
The Hon. Nellie Cournoyea Minister of Public Works and Highways, Minister of Health and Energy Minsiter of Mines and Petroleum Resources	Nunakput 873-7128
The Hon. Tom Butters Minister of Government Services, N.W.T. Housing Corporation, Municipal and Community Affairs	Inuvik 873-7123

Legislative Assembly

The Hon. Richard Nerysoo Speaker of the Legislative Assembly	Mackenzie Delta 873-7629
Clerk	873-7457

Northwest Territories Government — Regional Offices

Regional Director Baffin Region Iqaluit, N.W.T. X0A 0H0	(819) 979-5341
Regional Director Fort Smith Region P.O. Box 5 Fort Smith, N.W.T. X0E 0P0	(403) 872-7222
Regional Director Inuvik Region Bag Service No. 1 Inuvik, N.W.T. X0E 0T0	(403) 979-7112
Regional Director Keewatin Region P.O. Bag Service 002 Rankin Inlet, N.W.T. X0C 0G0	(819) 645-2856
Regional Director Kitikmeot Region Cambridge Bay, N.W.T. X0E 0C0	(403) 983-7200 Ext. 200

Government Departments

Cabinet Office	873-7100
Aboriginal Rights and Constitutional Development Secretariat	873-7143
Regional Operations Secretariat	873-7910
Priorities and Planning Secretariat	873-7240
Security	873-7910
Executive Finance and Administration	873-7148
Audit Bureau	873-7106
Bureau of Statistics	873-7147
Intergovernmental Affairs Protocol Officer	873-7150

Ottawa Office

Deputy Minister Intergovernmental Affairs Government of the N.W.T. Suite 912 — 350 Sparks Street Ottawa, Ontario K1R 7S8	(613) 234-6525

Edmonton Office

Senior Liaison Officer Government of the N.W.T. 830 Melton Building 10310 Jasper Avenue Edmonton, Alberta, T5J 1Y7	(403) 423-1959

Department of Economic Development and Tourism

Economic Development Agreement Secretariat	920-8744
Financial Services and Administration	873-7532
Tourism and Parks	873-7902
Business Development	873-7388

Department of Education

Advanced Education	873-7252
Program Development	873-7141
Arctic College	
Yellowknife Campus	920-6306
Thebacha Campus (Fort Smith)	872-7520
Aurora Campus (Inuvik)	979-2556
Nunatta Campus (Iqaluit)	(819) 979-6284
Keewatin Campus (Rankin Inlet)	(403) 645-2529
Kitikmeot Campus (Cambridge Bay)	983-7234

Department of Energy, Mines and Petroleum Resources

General Information	873-7224

Department of Finance

Comptroller-General	873-7338
Finance and Administration	873-7158
Treasury	873-7308
Comptrollership	873-7164

Financial Management Secretariat

Secretary to the Financial Management Board	873-7117

Department of Government Services

Finance	873-7522
Supply Services	873-7213
Petroleum Products	873-7201
Office Services and Administration	920-8654
Systems and Computer Services	873-7521
Emergency	873-7979
Liquor Commission of the N.W.T. P.O. Box 1130 Hay River, N.W.T. X0E 0R0	874-2100

Department of Health

Hospital and Health Facilities	920-8931
Health Programs and Standards	873-7711
Health Insurance Administration	873-7714
Medical Services Branch:	
Baffin Regional Hospital (Iqaluit)	(819) 979-5231
Fort Smith Health Centre	(403) 872-2713
H.H. Williams Memorial Hospital (Hay River)	874-6512
Inuvik Medical Clinic	979-2422
Rankin Inlet Health Centre	645-2816
Cambridge Bay Health Centre	983-2531
Fort Simpson Hospital	695-2291
Stanton Yellowknife Hospital	920-4111

Department of Culture and Communications

Language Bureau	873-7616
Public Affairs	873-7251
Audio-Visual Section	873-7258
Printing Bureau	873-7648
Cultural Affairs	920-3104
Government Library	873-7628

Department of Justice

Finance and Administration	873-7641
Legal Division	873-7437
Legislation Division	873-7462
Legal Services Board	873-7450
Land Titles/Legal Registries	873-7490
Court Services	873-7488
Constitutional Law	920-8074

Department of Municipal and Community Affairs

Finance and Administration	873-7613
Community Planning	920-8916
Policy and Evaluation	873-7232
Municipal Affairs	873-7329
Assessment	873-7997
Sport and Recreation	873-7245
Community Works and Capital Planning	920-8751
Surveys and Mapping	920-8603
Lands	873-7571

Department of Personnel

Finance and Administration	873-6199
Staff Relations	873-6377
Human Resource Planning	873-7235
Staffing and Classification	920-6413

Department of Public Works

Policy, Planning and Training Division	920-8668
Contracts	873-7256
Finance Division	920-8774
Architectural Division	873-7535
Engineering Division	873-7826
Operations Division	873-7397
Energy Management	873-7202

Justice

Department of Renewable Resources

Finance and Administration	873-7752
Pollution Control Division	873-7654
Wildlife Management	873-7411
Conservation Education and Resource Development	920-8716
Science Institute	873-7592
Forest Management	920-6405
Fire Management	920-6100

Department of Safety and Public Services

Mining Inspection	873-7075
Safety	873-7996
Labour	873-7486
Consumer and Corporate Affairs	920-8054

Department of Social Services

Finance and Administration	873-7559
Policy Planning and Support	873-7703
Corrections Service	920-8922
Community and Family Support	873-7455
Family & Children's Services	873-7709
Alcohol, Drug and Community Health	873-7429
Area Social Services	873-7276
Yellowknife Receiving Home	873-7298
Yellowknife Correctional Centre	920-8664

Department of Transportation

Motor Vehicles	873-7406
Arctic Airports	873-7725
Highways	920-6153
Marine Operations	873-7801

Agencies, Boards and Councils

Advisory Council on the Status of Women
P.O. Box 1320,
Yellowknife, N.W.T.
X1A 2L9
Contact: Minnie Jacobson 920-8775

Apprenticeship and Tradesmen's Qualification Board
P.O. Box 1320,
Yellowknife, N.W.T.
X1A 2L9
Contact: Brian Wainwright 873-7367

Arctic College
P.O. Box 1320,
Yellowknife, N.W.T.
X1A 2L9
Contact: Mark Cleveland, President 920-6306

Loan Fund Advisory Board
P.O. Box 1320,
Yellowknife, N.W.T.
X1A 2L9
Contact: C.L. Sanford 873-7363

Highway Transport Board
P.O. Box 697,
Yellowknife, N.W.T.
Contact: Mr. Dale Thompson 873-7494
873-7495

Labour Standards Board of the Northwest Territories
P.O. Box 1320,
Yellowknife, N.W.T.
X1A 2L9
Contact: Karen Dyck 873-7924

Legal Services Board of the Northwest Territories
P.O. Box 1320
Yellowknife, N.W.T.
X1A 2L9
Contact: W. Douglas Miller 873-7450

Alcohol and Drug Co-ordinating Council
P.O. Box 1320
Yellowknife, N.W.T.
X1A 2L9
Contact: June Heywood 920-2064

Northwest Territories Business Loans and Guarantee Board
Box 1320
Yellowknife, N.W.T.
X1A 2L9
Director: John McGregor 873-7833

Northwest Territories Housing Corporation
P.O. Box 2100
Yellowknife, N.W.T.
X1A 2P6
Chairman: Gary Jaeb 873-7850
President: Jake Heron 873-7850
Manager: Kathryn Garven 873-7852

Finance and Administration Division
Vice-President, Lloyd Clark 873-7897
Comptroller, Emil Homenuik 873-7864
Material Management Manager, Bob Loftus 873-7869
Personnel Administration Manager, Jack Conroy 873-7860

Construction and Development Division
Vice-President, Norman Ridgely 873-7875
Development Manager, Willie Herzog 873-7886
Lands and Sites Manager, Ron McCaw 873-7878

Justice

Programs and Planning Division

Vice-President, Hal Logsdon	873-7898
Rental Programs Head, Jalal Toeg	873-7898
Homeownership Programs Head, Jim Fennell	873-7894
Capital Planning Manager, Jim Atkin	873-7858

Northwest Territories Liquor Licensing Board
P.O. Box 1320
Yellowknife, N.W.T.
X1A 2L9
Contact: Margaret Strang 920-8814

Northwest Territories Public Utilities Board
P.O. Box 697,
Yellowknife, N.W.T.
X1A 2N5
Contact: Dale Thomson 873-7494,5

Northwest Territories Social Assistance Appeal Board
P.O. Box 1320,
Yellowknife, N.W.T.
X1A 2L9
Contact: Dick Clarke 873-7160

Northwest Territories Water Board
P.O. Box 5000
Yellowknife, N.W.T.
X1A 2R3
Contact: Pamela Le Mouel 920-8191

Science Institute of the Northwest Territories
P.O. Box 1617
Yellowknife, N.W.T.
X1A 2P2
Contact: Douglas Heyland 873-7592

Special Agricultural and Rural Development Act (ARDA) Committee
P.O. Box 1320
Yellowknife, N.W.T.
X1A 2L9
Contact: John McGregor 873-7388

Teacher Certification Board
P.O. Box 293,
Yellowknife, N.W.T.
X1A 2N2
Contact: Sandra Thompson 873-7392

Territorial Hospital Insurance Services Board
P.O. Box 1320,
Yellowknife, N.W.T.
X1A 2L9
Contact: Edward Timoffee 920-8931

Workers' Compensation Board
P.O. Box 8888
Yellowknife, N.W.T.
X1A 2R3
Contact: Lynne Green 920-8021